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Forest Service

Tongass
National
Forest
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April 2003

Cholmondeley Timber Sales

Final Environmental Impact Statement

Abbreviations and Common Acronyms

AHMU	Aquatic Habitat Management Unit
ANILCA	Alaska National Interest Lands Conservation Act
ASQ	Allowable Sale Quantity
BMPs	Best Management Practices
CCF	Hundred Cubic Feet
CEQ	Council on Environmental Quality
DEIS	Draft Environmental Impact Statement
FEIS	Final Environmental Impact Statement
Forest Plan	Tongass Land and Resource Management Plan, 1997
GIS	Geographic Information System
IDT	Interdisciplinary Team
IRA	Inventoried Roadless Area
LTF	Log Transfer Facility
LUD	Land Use Designation
MBF	Thousand Board Feet
MIS	Management Indicator Species
MMBF	Million Board Feet
MMCF	Million Cubic Feet
NEPA	National Environmental Policy Act
NFMA	National Forest Management Act
NIC	Non-interchangeable Component
OGR	Old-Growth Habitat Reserve
POG	Productive Old-Growth
RMO	Road Management Objective
ROS	Recreation Opportunity Spectrum
TES	Threatened Endangered Sensitive Species
TTRA	Tongass Timber Reform Act
VCU	Value Comparison Unit
VQO	Visual Quality Objective
WAA	Wildlife Analysis Area

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Dear Reader:

Enclosed is your copy of the Final Environmental Impact Statement (FEIS) for the Cholmondeley Timber Sales, Craig Ranger District, Tongass National Forest.

The FEIS proposes six action alternatives for harvesting timber and one no-action alternative. The action alternatives would make approximately 8 to 36 million board feet of timber available for harvest within the Cholmondeley Project Area. The FEIS also proposes a non-significant Forest Plan amendment by adjusting the boundaries of three small old-growth reserves and one medium old-growth reserve as part of the decision.

The Record of Decision (ROD) will explain my decision. The effective date of implementation for the decision and Notice of Rights to Appeal are also specified in the ROD.

Copies of the FEIS are available in all Forest Service offices (including District and Supervisor's Offices) on the Tongass National Forest. Additional copies may be obtained from the Craig Ranger District Office, 900 9th Street, Craig, Alaska 99921, or by calling (907) 826-3271.

I want to thank those of you who took time to review and submit comments on the Draft Environmental Impact Statement. I appreciate your interest in the management of the Tongass National Forest.

Sincerely,

THOMAS PUCHLERZ
Forest Supervisor

Cholmondeley Timber Sales

Final Environmental Impact Statement

United Statest Department of Agriculture
Tongass National Forest
Ketchikan, Alaska

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Abstract

The Forest Service is proposing to implement the Tongass Forest Plan by proposing to harvest approximately 36 MMBF of timber in the Cholmondeley Project Area. This Final Environmental Impact Statement describes the effects of six "action" alternatives for harvesting timber and one "no action" alternative. The action alternatives would make from approximately 8 to 36 million board feet of timber available for harvest within the Chomondeley Project Area on the Craig Ranger District. The project also proposes a non-significant Forest Plan amendment by adjusting the boundaries of three small old-growth reserves and one medium old-growth reserve as part of the decision. The significant issues addressed by the alternatives and the EIS include: 1) potential effects to Saltery Cove; 2) potential effects to Clover Bay; 3) potential effects to Sunny Cove; 4) timber sale economics and supply; and 5) roadless character.

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Summary

Summary

Project Area

The Cholmondeley Project Area is located approximately 25 air miles west of Ketchikan, Alaska. It encompasses an area of south Prince of Wales Island that extends from Skowl Arm to Cholmondeley Sound. The Cholmondeley Project Area is within the Craig Ranger District of the Tongass National Forest, Alaska.

Proposed Action

The Forest Service proposes to harvest approximately 36 million board feet (MMBF) of timber from the Cholmondeley Project Area. Unit prescriptions would be clearcuts with reserve trees and two-aged harvest systems. Units would be yarded using helicopter, cable, and ground-based equipment. This timber harvest would require construction of up to 22.3 miles of new road and up to three new log transfer facilities (LTFs). An access and travel management plan would be developed for the project area to guide road system management.

Three small and one medium old-growth reserve would be compared to the criteria in Appendix K of the Forest Plan. Any modifications of the old-growth reserves would be documented as a non-significant amendment to the modified 1997 Tongass Land and Resource Management Plan (Forest Plan).

Decisions to be Made

The Record of Decision (ROD) for the Forest Plan established that timber harvest is appropriate in the Cholmondeley Project Area. The Tongass Forest Supervisor will decide:

- The location, design, and scheduling of any timber harvest, road construction, log transfer facilities, and silvicultural practices,
- Access management measures (road, trail, and area restrictions and closures),
- Mitigation measures and monitoring requirements,
- Whether there may be a significant possibility of a significant restriction to subsistence uses, and
- Whether proposed changes to the small and medium old-growth reserves should be approved as a non-significant amendment to the Forest Plan.

Purpose and Need

The purpose and need for the proposed action is to respond to the goals and objectives identified in the Forest Plan for the timber resource. The proposed action will help move the project area toward the desired future condition. The reasons for scheduling timber harvest in this area at this time are discussed in Appendix A of this environmental impact statement (EIS).

The Forest Plan identified the following goals and objectives:

1. Manage the timber resource for production of saw timber and other wood products from suitable timber lands made available for timber harvest, on an even-flow, long-term sustained yield basis and in an economically efficient manner (Forest Plan, Page 2-4),
2. Seek to provide a timber supply sufficient to meet the annual market demand for Tongass National Forest timber, and the market demand for the planning cycle,
3. Provide a diversity of opportunities for resource uses that contributes to the local and regional economies of Southeast Alaska (Forest Plan, Page 2-3),
4. Support a wide range of natural resource employment opportunities within Southeast Alaska's communities,
5. Maintain healthy forest ecosystems; maintain a mix of habitat at different spatial scales capable of supporting the full range of naturally occurring flora, fauna, and ecological processes native to Southeast Alaska (Forest Plan, Page 2-2), and
6. Maintain a forest-wide system of old-growth forest habitats to sustain old growth associated species and resources.

Public Scoping

"Public scoping" is the term used to describe the process of identifying the significant issues for a project. Interested individuals and agencies are contacted to determine their concerns. The following is a summary of the letters, meetings, and contacts that took place during this project.

July 1997: Notice of Intent to prepare an EIS published in the Federal Register.

August 1997: Scoping letter sent out to identify issues.

August 1997: Project notice published in the Ketchikan Daily News and Island News.

September 1997: Public meetings held in Saltery Cove and Ketchikan.

March 1999: Public meeting held in Saltery Cove.

September 1999: Public meetings held in Saltery Cove and Ketchikan.

October 1999: Public meeting held in Kasaan.

March 2000: Public meeting held in Ketchikan.

February 2001: Public meetings held in Kasaan and Saltery Cove.

March 2001: Public meetings held in Ketchikan.

December 2002: Public meeting held in Saltery Cove.

February 2003: Public meeting held in Saltery Cove.

A number of additional smaller meetings were held with individuals, agencies, and organizations, including the Alaska Department of Fish and Game, U.S. Fish and Wildlife Service, and Department of Environmental Conservation.

Project Issues

Significant issues for the Cholmondeley Project were identified through public and internal scoping. Similar issues were combined into one statement where appropriate. The following five significant issues were identified and form the basis of the alternatives to the proposed action.

Issue 1: Potential Effects to Saltery Cove

The residents and lodge owners in Saltery Cove are concerned about the potential impacts of timber harvest on: domestic water supply, scenic quality, wind patterns, mooring safety, subsistence resources and disturbance associated with new roads.

Issue 2: Potential Effects to Clover Bay

The Clover Bay Lodge is a floating lodge that moors seasonally in Clover Bay. The owners of the lodge are concerned about the effects of timber harvest and associated activities on the scenic quality of the bay, disturbance of their clients' experience, and domestic water supply.

Issue 3: Potential Effects to Sunny Cove

The residents of Sunny Cove are concerned about the potential impacts of timber harvest on: domestic water supply, scenic quality, changes of wind patterns, and mooring and property safety. They are also concerned that increased road access would increase competition for subsistence resources.

Issue 4: Timber Sale Economics and Supply

Concerns were expressed about the economic viability of timber sales. More complex unit prescriptions on difficult terrain may affect the amount of timber available to meet Southeast Alaska market demands. Of additional concern is the effect timber harvest would have on local employment and revenues.

Issue 5: Roadless Character

The entire project area is located within the McKenzie Roadless Area, and is largely undeveloped. Concerns were expressed that timber harvest and road construction would change the undeveloped character of the roadless area. Proposed development could affect access patterns and future management.

Alternatives

The significant issues were used to develop alternatives to the proposed action.

Alternative 1 (No-Action)

Alternative 1, the no-action alternative, analyzes the effects of not harvesting timber and building roads or LTFs in the project area at this time (Figure 2-1, Chapter 2).

Alternative 2

Alternative 2 responds to the issue of building roads in an unroaded area of the National Forest. It also addresses the domestic water and security issues because stream crossings and roads would not be necessary. This alternative would harvest approximately 35 MMBF of timber from 1,511 acres. All harvested timber would be yarded using helicopters and no roads or LTFs would be constructed (Figure 2-2, Chapter 2).

Alternative 3

Alternative 3 addresses the issues of the two communities and the Clover Bay Lodge. No roads would be built across streams used for domestic water in Saltery Cove or Clover Bay. About 5 miles of road and one LTF would be built east of Sunny Cove. Approximately 33 MMBF of timber would be harvested from 1,489 acres under this alternative. Most units would be yarded using helicopters except those accessed by road. Those units accessed by road would be yarded with cable and ground-based equipment (Figure 2-3, Chapter 2).

Alternative 4

Alternative 4 responds to the issues of timber sale economics and supply. This alternative emphasizes developing economically efficient timber sale packages. Approximately 24 MMBF of timber would be harvested from 941 acres. Units would be yarded with helicopters, cable systems, and ground-based equipment. Approximately 17.5 miles of road and 3 LTFs would be constructed to facilitate timber harvest (Figure 2-4, Chapter 2).

Alternative 5 (Preferred Alternative)

Alternative 5 attempts to achieve the timber volume outputs predicted in the Forest Plan and meet the minimum standards and guidelines. Approximately 37 MMBF of timber would be harvested from 1,511 acres. Units would be yarded with helicopters, cable systems, and ground-based equipment. Approximately 26 miles of road and three LTFs would be constructed to facilitate timber harvest (Figure 2-5, Chapter 2).

Alternative 6

This alternative responds to issues of timber harvest to most closely meet outputs anticipated in the Forest Plan while addressing public concerns in the issue areas to the fullest extent possible. This proposed harvest would produce about 35 MMBF of timber (not including right-of-way volume) (Figure 2-6). The average harvest unit size is 35 acres. The project area would be divided into five sale areas, the smallest of which would be about 5.1 MMBF. Helicopter yarding is planned for 63 percent of the units, while 77 percent have at least a portion of the acres planned for helicopter yarding. This alternative would require construction of 18 miles of specified road and

two LTFs. The LTFs would be built west of Island Point and east of Sunny Cove in Cholmondeley Sound.

Alternative 7

Alternative 7 displays the biological team's preferred old growth configuration for medium and small reserves. This alternative emphasizes the best biological mix of reserves as preferred by the interagency team of biologists. It seeks to meet the intent of the Forest Plan (Appendix K) and Tongass Plan Implementation Team (TPIT) recommendations from a purely plant and wildlife prospective without regard to Land Use Designations. By displaying this perspective, we have a full range of old growth reserve options at the disposal of the decision maker. Alternative 7 proposes to harvest 355 acres of commercial forest land in 13 harvest units. This proposed harvest would produce about 7.8 MMBF of timber, not including right-of-way volume (Figure 2-7). The average harvest unit size is 27.3 acres. The project area would be divided into five sale areas, the smallest of which would be about 1.6 MMBF. All of the units are helicopter yarded and no roads or LTFs will be constructed.

Mitigation Measures For All Action Alternatives

The mitigation measures for all of the action alternatives are described in Chapter 2 and Appendix C of this EIS. The unit cards and road cards in the ROD also cross-reference the mitigation measures.

Comparison of Alternatives

Issue 1: Potential Effects to Saltery Cove

Domestic Water Supply

Alternative 1 would have the least adverse impact on the streams used for domestic water since there would be no road construction or timber harvest.

Alternatives 2 and 3 would have the least adverse effects of the action alternatives. No roads would be constructed under either of these alternatives and the harvest units would be yarded using helicopters. Therefore, stream crossings or road related adverse effects would not accrue to the streams used for domestic water. Yarding logs with full suspension would cause the least soil disturbance of the action alternatives.

Alternative 3 would have fewer effects than Alternative 2 because more ground cover and approximately 20 percent more of the standing volume would be left in the units.

Alternatives 4 and 5 would have the same possible adverse effects because both alternatives have the same road design and silvicultural prescriptions. Most yarding would be partial suspension cable systems. These yarding systems have a higher potential to cause soil disturbance than those used in Alternatives 2 and 3.

Alternative 6 would have the same units as in Alternative 5, but the units would be logged by helicopter and no road would be constructed. This would result in impacts similar to Alternatives 2 and 3. Sediment levels would be expected to remain within

natural parameters. Buffer widths for domestic streams are 500 feet of no-cut for this alternative. Harvest retention would equal that of Alternative 3.

Alternative 7 would be logged by helicopter and no roads would be constructed. Impacts to water quality would be similar to those in Alternatives 2 and 3. Sediment levels would remain within natural parameters. This alternative would include fewer harvest units than any of the other proposed alternatives. The location of the small old-growth reserve (OGR) in this alternative encompasses approximately three fourths of unit 614-001a, all of units 614-001b, 614-002, and 614-034a, as well as most of 614-034b. This would result in less potential impact to the domestic water supply for Saltery Cove. Buffer widths for domestic water supply streams are 250 feet of no-cut harvest for this alternative.

Scenic Quality

In Alternative 1, no changes in scenery associated with timber harvest would occur around Saltery Cove or Swan Lake. Alternative 3 would have the least adverse effect of the action alternatives because of the additional trees left standing in the units under the two-aged management system. Alternative 2 would have slightly more visual impact because more even-aged clearcuts with reserves would be prescribed. Alternatives 4 and 5 would most modify the scenery around the cove and Swan Lake. All alternatives meet a higher visual quality standard than required in the Forest Plan (see Chapter 3). The McKenzie Inlet LTF would have an adverse visual effect at the entrance of the inlet that would not meet the visual quality standard.

The scenery impacts in this alternative would be the same as Alternative 3. The units above Saltery Cove and Swan Lake would be logged by helicopter. Units 614-001a and 001b and Unit 614-002 all have the same combination of clearcut with reserves and partial cut prescriptions as Alternative 3. As in Alternatives 2 and 3, areas that are harvested will have less visual impact than areas logged by cable due to the absence of often highly visible cable yarding corridors. As with Alternative 3, there will be no roading in this area and no LTF at the mouth of McKenzie Inlet. The only visual impact associated with the transfer of logs from the unit to the water would be the temporary presence of barges, either near the mouth of Saltery Cove or McKenzie Inlet.

Alternative 7 would eliminate all of Unit 614-001b and much of Unit 614-001a. Only a very small portion of Unit 614-001a would be visible from inside the cove and from the entrance to the cove. This would result in a Partial Retention objective easily being met in this viewshed. In the Swan Lake viewshed, the impacts would also be much less than the other alternatives. Units 614-002 in the foreground and 614-034a in the middleground are dropped in this alternative. Only a portion of Unit 614-034b on the middleground slopes at the head of the lake is included in this alternative. Hence there would be no impact in the foreground portion of the Swan Lake viewshed, while, in the middleground, Unit 034b will meet a modification VQO as it does in the other alternatives. Over time, harvested areas would resemble natural disturbance patterns but at a larger scale than normal, the extent of which depends on the amount of retention left standing in the different alternatives.

Lodge Business

We anticipate no negative impacts to the saltwater fish population from any of the alternatives. Alternative 1 would have no adverse effect on the Sportsman's Cove Lodge. Alternatives 2, 3, 6, and 7 would have similar effects on the lodge, in that there would be some disturbance where helicopters log drops occur. This disturbance would be limited to the hours between 7 a.m. and 3 p.m., when most lodge clients are salt water fishing (only Alternative 3). Barges and support equipment would be present under all action alternatives. This would occur in McKenzie Inlet or Clover Bay depending on the alternative. Alternatives 4 and 5 would also have similar effects. There would be less disturbance to the cove than in Alternatives 2 and 3 but more disturbance to McKenzie Inlet. Dust and noise associated with vehicle traffic could be seen and heard from Swan Lake but would not likely significantly effect the cove residences.

The anticipated number of seasons of operation is one to two for Alternatives 2, 3, and 6. We anticipate one season with Alternative 7 and two to four seasons with Alternatives 4 and 5.

Silvicultural prescriptions would retain more structure in Alternatives 3 and 6, resulting in less visual impacts.

We do not anticipate a floating log camp in Saltery Cove because of existing camp options nearby (Smith Cove or Polk Inlet).

Much less volume would be yarded near Saltery cove in Alternative 7 due to the expansion of the Old Growth Reserve on the west side of Swan Lake.

Based on the information provided by the lodge owners, we would anticipate a low risk of losing recreation jobs for Alternatives 3, 6, and 7, and a moderate risk to losing recreation jobs for Alternatives 2, 4, and 5.

An option under any alternative would be to extend the lodge-operating season by leasing lodge space to loggers.

Community Privacy and Security

Alternatives 1, 2, 3, 6, and 7 would have no effect on access since no roads would be built. Hiking activity may increase on the road constructed under Alternatives 4 and 5 after the road is closed following post-harvest activities.

Alternative 7 has similar effects to Alternative 6. However, much less volume would be yarded and much less duration of noise levels would accompany this alternative.

No changes to the security, solitude, and peacefulness of the local surroundings would occur under Alternative 1.

Noise levels created by chainsaws and helicopters would increase under Alternatives 2, 3, and 7 during timber harvest operations. Helicopter operations will tend to have long working hours during long summer days.

Noise levels under Alternatives 4 and 5 would increase in the area as a result of chainsaws, cable yarders and logging trucks. An LTF in McKenzie Inlet and specified

and short-term road construction would provide access to the area behind the residences and lodge. These roads would be closed to motorized vehicles by blocking them physically and with a CFR closure order to enforce the restriction against motorized vehicle uses. "Walk-in" hunting may increase; however, the road would be more than ¼ mile from the community. Though this might be only periodic and infrequent, it would reduce the feeling of remoteness now experienced by the resort clients. The lodge could see an increase in operating cost to supply quarters and wages for a winter watchman. We do not anticipate any significant decrease in safety beyond the normal safety of any remote area of Alaska.

Wind Patterns

Wind pattern changes would not be the result of timber harvest under Alternative 1. Wind effects would be similar for action Alternatives 2-6 because the volume harvested under each alternative is similar. Possible wind pattern changes resulting from timber harvest are not expected to have adverse effects on the residences or mooring in Saltery Cove. Wind throw may occur along the edges of buffers, units, or road corridors, but harvested openings are not expected to increase wind velocity. Mitigation measures (see Appendix D) and the forested area between the harvest units and Saltery Cove would impede wind velocity before it reached the cove.

The effects Alternative 6 would be similar to, but slightly less than, that of Alternative 3, due to one unit being dropped.

The effects of Alternative 7 would be the least of all action alternatives. Only two small units spaced far apart would be harvested, due to the location of the old-growth reserve. The Forest Service anticipates that both the distance and small size of the openings would limit the wind effects reaching the cove.

Subsistence

Hunting use, especially from outside the area, would remain at the current low level for alternatives 1, 2, 3, 6, and 7. Competition among subsistence hunters would not change since no changes in access would occur.

Under alternatives 4 and 5 additional access to the area would be available at the LTF. There could be additional hunting pressure in the area of the LTF and from the roads. We anticipate some competition between subsistence users and some competition from Ketchikan hunters. However, roads will be closed. See the subsistence section for details.

We expect no changes in deer abundance and distribution under any alternative.

Issue 2: Potential Effects to Clover Bay

Scenic Quality

Alternatives 1, 2, 3, 6, and 7 would have no adverse effects on the scenery of Clover Bay since no timber harvest would be visible from the bay. The backline part of one unit may be seen from the south side of Clover Bay in Alternatives 2, 4, 5, and 6. Alternatives 4, 5, and 7 would have the additional visual impact of the LTF from the

south, southwest entrance of the bay. All alternatives meet the VQO or higher standard than required in the Forest Plan.

Three units would be visible from Clarence Strait in Alternatives 2, 3, and 5 and two units would be visible in Alternative 7. These units would be slightly more visible under Alternative 5 due to the cable corridors. No changes in scenery would occur under Alternatives 1 and 4. No timber harvest occurs under Alternative 1 or north of Monie Lake under Alternative 4.

The LTF proposed under Alternative 6 is at Island Point north of Monie Lake. Extending from this LTF would be a road running along the lower slopes of the ridge on which many of the units are located. The two units closest to Clover Bay, 617-009 and 616-010, would be logged by helicopter rather than roaded for cable logging.

Units to the north of Clover Bay that sit on the slopes facing Clarence Strait would be helicopter logged as in Alternative 2 and 6. Because of the absence of cable yarding corridors and the retention of unmerchantable trees, the contrast created by these units will be softened to a degree. In this alternative a LTF would be located just outside Trollers Cove, near Island Point. Portions of the road south of the Island Point LTF would be visible from the saltwater areas south of Island Point where some fishing occurs either by Clover Bay clients or by Ketchikan or Prince of Wales Island residents. The visual impacts from this road would be either from a few visible rock cuts or from a narrow shadow created across the forested slopes by the right-of-way clearing.

Lodge Business

Under all alternatives, there would be no adverse effects to the saltwater fish population or wildlife habitat in Clover Bay. Alternatives 1, 3, and 7 would have the least effect on the Clover Bay Lodge as no timber harvest or associated activities would be visible from the bay. Alternative 2 and 6 would compromise lodge business slightly more than Alternatives 1 and 3 because part of one unit would be visible from the south end of the bay. Alternatives 4 and 5 would have the highest potential for negative effects because of the additional visual effect of the LTF and disturbance associated with logging activities.

The effects of Alternative 6 would differ from other alternatives due to the newly proposed LTF west of Island Point and the lowering of the backline in unit 616-010. Clients fishing near Island Point would see the LTF, road, and sort yard area; however, the majority of fishing occurs further south. Options exist for land-based or floating camp facilities. Floating camp options include Smith Cove, Polk Inlet, or other small, more exposed coves near Trollers Cove cabin.

The anticipated number of seasons of operation is one to two for Alternatives 2 and 3. We anticipate one season with Alternative 7 and two to four seasons with Alternatives 4 and 5.

Based on information from lodge owners, we would anticipate a low to moderate risk of losing recreation industry jobs under Alternatives 2, 3, 6, and 7, and a high risk of losing recreation industry jobs under Alternatives 4 and 5.

Domestic Water

No adverse effects to the stream used for domestic water would occur under any alternative. No harvest would occur in the domestic water watershed under Alternatives 1, 3, and 7. Timber harvest would occur in the upper end of the watershed in Alternatives 2, 4, and 5. A road would be built to access the unit under Alternatives 4 and 5 but it does not cross the stream.

Wind

No harvest or construction is planned under Alternative 1. Windthrow and wind patterns would remain at natural levels. Storm winds generally come from the southeast, with a local easterly during high wind events.

No roads or LTFs would be constructed in Clover Bay under Alternatives 2, 3, 6, or 7. Stream buffers on the drinking water stream should limit windthrow to insignificant or natural amounts.

Openings in the forest canopy created by road corridors, harvest units, or LTF construction increase the risk for blowdown to occur. Minor amounts of random blowdown are anticipated along the edges of created openings under Alternatives 4 and 5. Larger openings result in a larger risk of blowdown. Trees growing close to the shoreline will have increased windfirmness, which is an important factor in the proposed screening of the upland sorting area near the low-angle ramp associated with the LTF.

Approximately 1,700 feet of forested land separates Clover Bay Lodge and the road corridor. This buffer should eliminate any wind pattern changes near the lodge. Harvesting the units north of Clover Bay should create minimal wind-related effects, because strong winds generally come from the south.

Issue 3: Potential Effects to Sunny Cove

Domestic Water

Alternative 1 would have no adverse effects on the drinking water supply since no timber harvest would occur. A small tributary to the stream used for drinking water flows through one unit under Alternative 2. The wide, windfirm buffer along the tributary and yarding the unit with helicopters would prevent harvest related sediment from entering the stream. Alternatives 3 through 7 would all have similar effects. Mitigation measures (Unit Cards in Appendix 2 of the Record of Decision and Appendix C of the Final Environmental Impact Statement) would prevent sediment and petroleum products from entering the tributaries and drinking water stream.

Scenic Quality

Alternative 1 would not change the scenic quality of Sunny Cove since no timber harvest would occur. The scenery around Sunny Cove would be modified under all action alternatives but all changes would meet the VQO or higher standard required in the Forest Plan. All action alternatives would have additional scenic effects related to

the LTF. The VQO of this development would still meet Forest Plan standards of Maximum Modification.

Alternative 4 would not change the scenic quality as seen from West Arm of Cholmondeley Sound since no units would be harvested under either alternative. Alternatives 2, 3, 5 6, and 7 would modify the scenery of this area but would meet the Forest Plan standard for visual quality.

Community Privacy and Security

Alternatives 1 and 2 would not change access into Sunny Cove, so privacy and security would remain static. Residents of Sunny Cove would notice increased activity around the cove but not directly near their homes. All action alternatives would have similar effects because roads are used to access timber. The roads are approximately ¼ mile from Sunny Cove residences and would be closed to motorized use following timber sale activities. Firearms would not be allowed on the road originating from the Sunny Cove LTF during yarding or road construction.

Hiking activity may increase on the road constructed under Alternatives 4 through 7 after the road is closed following post-harvest activities. Though this might be only periodic and infrequent, it would reduce the feeling of remoteness now experienced by residents.

Alternatives 4 and 7 have similar effects. However, less volume would be yarded and less duration of noise levels would accompany this alternative.

Noise levels created by chainsaws, helicopters, cable yarders, and logging trucks would increase under all action alternatives during timber harvest operations. An LTF east of Sunny Cove and specified and short-term road construction would provide access to the area behind the residences. Helicopter operations would tend to have long working hours during long summer days.

The anticipated number of seasons of operation is one to two for Alternative 2. We anticipate three to four seasons with Alternatives 5, 6, and 7 and two to four seasons with Alternatives 3 and 4.

Subsistence

We expect no changes in deer abundance and distribution under any alternative of the Cholmondeley Project. We expect no changes in the subsistence use of the area under Alternatives 1, 2, and 7 since no roads would be built. The LTF in Alternatives 3 through 6 would provide an additional access point and may locally increase hunting pressure. We do not anticipate this increase to be significant.

Wind

The alternatives were designed to reduce the potential of winds increasing speed through units. Unit size and orientation relative to prevailing winds would prevent possible changes in wind patterns and adverse effects on the moorage and residences of Sunny Cove. Since the prevailing winds are from the south-southeast, none of the

units north and west of Sunny Cove would contribute to possible wind effects on the residences or moorage. The 1,000-foot beach buffer would be left intact and would mitigate any unforeseen wind aberrations.

Mariculture

Most residents of Sunny Cove share in the operation of an oyster farm that is anchored in the south end of Sunny Cove. The business is in the developing stage and has modest production. The residents anticipate future expansion. The interdisciplinary team thinks most potentially negative effects to mariculture operations would be avoided by not building a road upslope of the operation. No road is planned for construction in these watersheds under any alternative. Thus, only the remote possibility of minor effects to the mariculture operation would be possible from sediment in Sunny Creek (Watershed Report, project file).

Issue 4: Timber Sale Economics and Supply

In the Cholmondeley Project Area, up to 1511 acres of suitable and available timberland are proposed for harvest. Alternatives 2, 5, and 6 would provide the highest timber volume (approximately 35 MMBF, or 70,000 cunits). Alternative 3 would provide slightly less timber volume (33 MMBF, or 66.000 cunits), and Alternative 7 would supply the least volume (7.8 MMBF, or 15,900 cunits). Alternative 1 would not provide any timber volume. Right-of-way volume is not included in these estimates.

Using the NEPA Economic Analysis Tool (NEAT) program, comparisons were made with different utility standards and export scenarios across the alternatives. Alternatives 2, 3, and 6 produce negative expected bid values with both 6-inch utility standards with domestic processing and 10-inch utility standards with red cedar exported. Alternatives 4, 5, and 7 produce negative expected bid values with 6-inch utility standards with domestic processing and positive expected bid values with 10-inch utility standards with red cedar exported. Variation in net stumpage between alternatives is primarily due to the different amounts of helicopter logging, the greatest amount being in Alternative 2.

Stumpage values were also compared in a separate analysis across the five planned sale areas by using the appraisal handbook and cost collection figures in 1999 and 2000. In all cases, helicopter yarding distances had major effects, producing negative values on almost all sales at the low market conditions. Cable yarding produced positive values for almost all sales. Yarding distances also influenced helicopter yarding costs greatly. Helicopter yarding costs per sale ranged from $300 to $930 per MBF.

A range from positive to approximately minus 70 net stumpage value indicates a possible financially viable sale, as recent sale history bears out. The low market analysis produced net stumpage values ranging from negative $100 to positive $90/MBF (Table 3-9).

Alternatives 2-6 propose timber harvest that is 55 percent NIC I (non-interchangeable component) and 45 percent NIC II. NIC I contains the most economic to harvest ground, while NIC II contains more difficult to harvest ground. Alternative 7 harvests slightly less difficult ground.

On the Cholmondeley Project Area, 38 percent of the commercial forest land (CFL) was classified in the Forest Plan as NIC I and 62 percent as NIC II. These percentages indicate that the project area is difficult to harvest and the financial efficiency of harvest may be low. Both NIC I and NIC II exist within individual harvest units.

Alternatives 2 and 5 would generate the most logging-related employment and, thus, earnings, followed closely by Alternatives 3 and 6. A higher harvest level results in more timber harvest-related jobs and earnings. Additional secondary impacts would also occur in supplier/service communities for logging and sawmill operations, as with all industries.

The ID Team did not assess timber harvest-related employment and earnings that accrue directly to communities in and around the project area. Residents in small communities tend to take advantage of new jobs available in their vicinity. We expect that local people would fill some of the jobs or support services. In general, timber harvest-related jobs tend to be seasonal (April through October), and last for a limited time (one to five years). However, the offerings may be an important source of wood supply for the existing mills and logging operations and help to maintain the capital investment already in place in several communities.

Issue 5: Roadless Character

The Cholmondeley Project Area covers about 63 percent of the McKenzie Roadless Area. This roadless area has been evaluated under the 1964 Wilderness Act, ANILCA, Tongass Timber Reform Act, the original Tongass Land Management Plan (1979), the current Tongass Forest Plan, and the Supplemental Environmental Impact Statement to the Tongass Forest Plan. Alternative 1 would keep intact the roadless character and values of the portion of the McKenzie Roadless Area in the project area. As a result of helicopter harvest, Alternatives 2 and 7 do not reduce the McKenzie Roadless Area. Alternatives 3, 4, 5, and 6 would reduce the McKenzie Roadless Area by 2, 5, 7, and 6 percent respectively.

The values of roadless areas include watershed protection, healthy fish populations, wildlife and fish refugia, and intact native plant and animal communities and these would be affected to the degree the roadless area is reduced. However, many of the site-specific adverse effects would be mitigated and the components and functions of the ecosystems would remain.

Chapter 1

Purpose and Need

Chapter 1

Purpose and Need

Introduction

The Forest Service has prepared this Environmental Impact Statement (EIS) on the potential effects of timber harvest in the Cholmondeley Project Area in compliance with the National Environmental Policy Act (NEPA) and other relevant federal and state laws and regulations. The project area is located on Prince of Wales Island, within the Craig Ranger District, Tongass National Forest, Alaska. This EIS discloses the direct, indirect, and cumulative environmental impacts and any irreversible or irretrievable commitment of resources that would result from the proposed action and alternatives.

The Roadless Area Conservation; Final Rule (Roadless Rule) was signed by the Secretary of Agriculture in January 2001. This rule generally established prohibitions on road construction, road reconstruction, and timber harvest in inventoried roadless areas on National Forest System lands. The Roadless Rule contains language, which exempts projects, which have had the Notice of Availability for the Draft EIS published before January 12, 2001. The Cholmondeley Timber Sale Project meets these exemption criteria.

This EIS is prepared according to the format established by Council on Environmental Quality (CEQ) regulations implementing NEPA (40 CFR 1500-1508). Chapter 1 explains the purpose and need for the proposed action, discusses how the Cholmondeley Project relates to the modified 1997 Tongass Land and Resource Management Plan (Forest Plan), and identifies the significant issues driving the EIS analysis. Chapter 2 describes and compares the proposed action, alternatives to the proposed action, a no-action alternative, and summarizes the significant environmental consequences by issue. Chapter 3 describes the natural and human environments potentially affected by the proposed action and alternatives and discloses the potential effects. Chapter 4 contains the list of preparers, the EIS distribution list, literature cited, a glossary, and an index. Appendices provide additional information on specific aspects of the proposed project. This EIS summarizes and references other documented analyses where appropriate.

The interdisciplinary team (ID team) used a systematic approach for analyzing the proposed project alternatives, estimating the environmental effects, and preparing this EIS. The planning process complies with NEPA and the CEQ regulations. Planning was coordinated with the appropriate federal, state, and local agencies, and local federally recognized tribes.

A "proposed action" is defined early in the project-level planning process. It serves as a starting point for the ID team, and gives the public and other agencies specific information on which to focus comments. The ID team uses public and agency comments and information from preliminary analysis to identify the significant issues and develop alternatives to the proposed action.

Proposed Action

The Craig Ranger District proposes to sell and harvest approximately 37 million board feet (MMBF) – 74,000 hundred cubic feet (cunits) – of timber from the National Forest in the 74,000-acre Cholmondeley Project Area.

Harvest systems proposed include a mixture of even-aged clearcuts with reserves, uneven-aged management, and two-aged management. Yarding methods include conventional cable, helicopter, and shovel yarding.

About 26 miles of new road and up to three new log transfer facilities would be required to facilitate this harvest. Timber from this project would be offered through the Tongass National Forest timber sale program, through five sales of varying sizes.

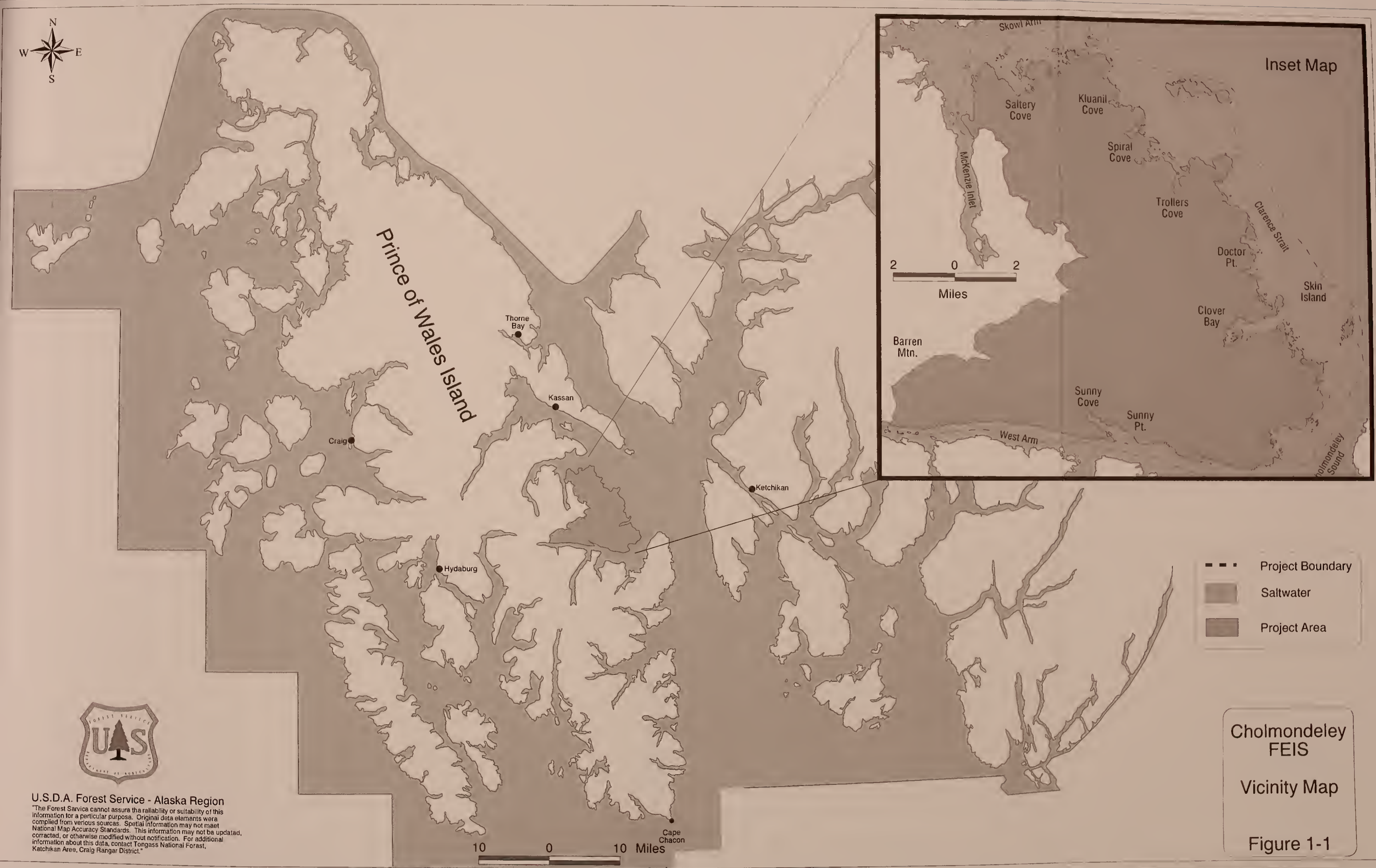
Adjustments to the boundaries and/or locations of three small old-growth reserves are proposed to meet criteria for wildlife objectives in old-growth reserves (Forest Plan, Appendix K). These adjustments could result in a non-significant amendment to the Forest Plan.

The proposed action also includes a road access management plan for the project area. Appendix A of this document provides general information on how this project relates to the overall Tongass National Forest timber sale program.

Decisions to Be Made

The Tongass Forest Supervisor will decide whether to harvest timber from the Cholmondeley Project Area and, if so, how the timber should be made available. The Forest Supervisor will use this analysis, along with the goals, objectives, and desired future conditions stated in the Forest Plan, as the basis for his decision. The decision will include:

- The location, design, and scheduling of any timber harvest, road construction, log transfer facilities, and silvicultural practices;
- Access management measures (road, trail, and area restrictions and closures);
- Mitigation measures and monitoring requirements;
- Whether there may be a significant possibility of a significant restriction on subsistence uses and, if so, related findings and measures to minimize impacts on subsistence users; and
- Whether proposed changes to the small old-growth reserves should be approved as an amendment to the Forest Plan.



U.S.D.A. Forest Service - Alaska Region

"The Forest Service cannot assure the reliability or suitability of this information for a particular purpose. Original data elements were compiled from various sources. Spatial information may not meet National Map Accuracy Standards. This information may not be updated, corrected, or otherwise modified without notification. For additional information about this data, contact Tongass National Forest, Ketchikan Area, Craig Ranger District."

Cholmondeley FEIS

Vicinity Map

Figure 1-1

Project Area

The Cholmondeley Project Area is approximately 25 air miles west of Ketchikan, Alaska (Figure 1-1). The project area, which is on southeast Prince of Wales Island, extends from Saltery Cove to Sunny Cove and includes Skowl Arm, Trollers Cove, and Clover Bay. This analysis focuses on the land area; which is 52,772 acres of the 74,000-acre project area. The rest of the project area includes bays, coves, and surrounding salt water.

Eight year-round residences, seasonal residents, and the Sportsman Cove Lodge are located on private land in Saltery Cove. Swan Lake is located to the south and east of the lodge and is used for recreation by lodge clients and residents. Trollers Cove has an anchorage and a Forest Service cabin that is available for rent. Clover Bay Lodge is a floating lodge moored seasonally in Clover Bay. Sunny Cove includes a parcel of private land that has both seasonal and year-round residences. Some of the residents operate a mariculture facility in the southwest portion of the cove.

The project area is within the McKenzie Roadless Area (# 519). In past planning efforts, this area had not been recommended for wilderness designation or non-development management classifications (Roadless Area Report, project file). The land use designations identified in the Forest Plan for the Cholmondeley Project Area are: Timber Production, Old-growth Habitat, Modified Landscape, and Semi-remote Recreation.

The communities of Hollis and Kasaan are located northwest of the project area. Access to the project area is by boat or small plane.

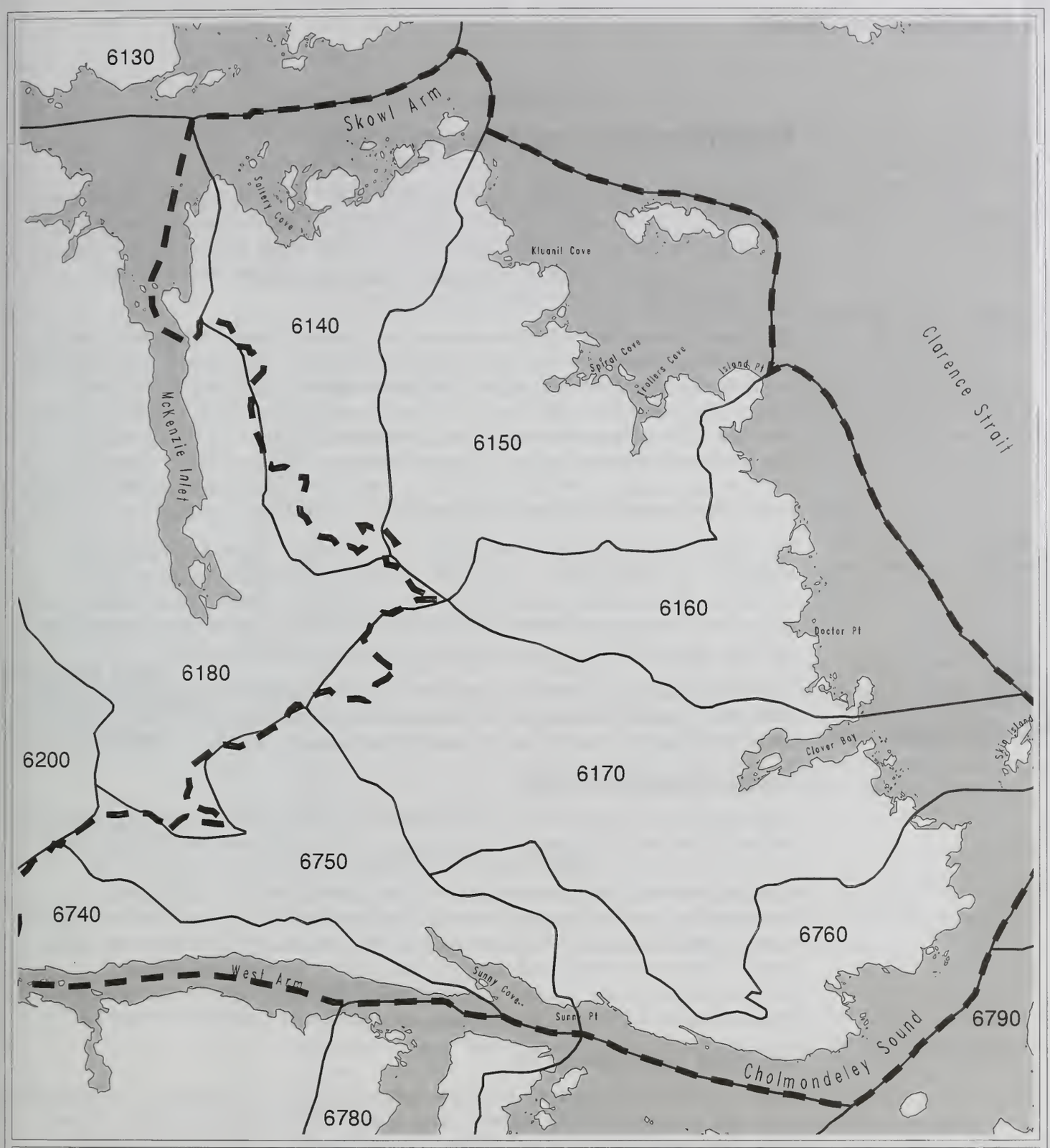
While virtually no harvest has occurred in the past within the project area, extensive private harvest has occurred to the north, northwest, south, southeast, and southwest.

Purpose and Need

The Cholmondeley Project responds to goals and objectives of the Forest Plan, and moves the project area toward the desired future conditions (Forest Plan, pages 2-1 through 2-5). Forest-wide goals and objectives applicable to the Cholmondeley Project Area include:

1. Manage the timber resource for production of saw timber and other wood products from suitable and available timber lands on an even-flow, long-term sustained yield basis and in an economically efficient manner.
2. Seek to provide a timber supply sufficient to meet the annual market demand for Tongass National Forest timber, and the market demand for the planning cycle.
3. Provide a diversity of opportunities for resource uses that contribute to the local and regional economies of Southeast Alaska.
4. Support a wide range of natural resource employment opportunities within Southeast Alaska's communities.
5. Maintain a Forest-wide system of old-growth forest habitat to sustain old-growth associated species and resources.

6. The Cholmondeley Timber Sale would be designed to produce desired resource values, products, and conditions in ways that also sustain the diversity and productivity of ecosystems (Forest Plan, page 2-1).
7. The Cholmondeley Timber Sale is expected to provide approximately 35 million board feet of timber. The range of alternatives considered in this Environmental Impact Statement was determined during our analysis and reflect issues raised during scoping.
8. The Cholmondeley Timber Sale is included as part of the overall Tongass National Forest timber sale program. For a discussion on how this project fits into the ten-year sale plan for the Tongass, see Appendix A of this EIS.



Saltwater

VCU Boundary

Project Boundary

CHOLMONDELEY
FEIS

VCU

2 0.0 2 miles

Figure 1-2

Relationship to Forest Plan

National Forest planning takes place at several levels: national, regional, forest, and project. The Cholmondeley EIS is a project-level analysis; its scope is confined to addressing the significant issues and possible environmental consequences of the project. It does not attempt to address decisions made at higher levels. It does, however, implement direction from those higher levels.

The Forest Plan embodies the provisions of the National Forest Management Act, its implementing regulations, and other guiding documents. The Forest Plan sets forth in detail the direction for managing the land and resources of the Tongass National Forest. The Forest Plan is the result of extensive analysis, which is addressed in the Forest Plan Final Environmental Impact Statement (FEIS) and its 2003 Supplement. The Cholmondeley Environmental Impact Statement (EIS) tiers to the Forest Plan FEIS, as encouraged by 40 CFR 1502.20. A recent court decision rescinded the 1999 Forest Plan Record of Decision (ROD), making the 1997 ROD the decision document.

The project area includes 935 acres of encumbered lands. These lands have been selected by the State of Alaska and Sealaska Corporation but have not yet been conveyed. Though administered by the Tongass National Forest, timber management activities are not planned on these lands and they are not included in the project area analysis; however, they are included in the cumulative effects analysis

Forest Plan Land Use Designations

The Forest Plan uses land use designations (LUDs) to guide management of the lands within the Tongass National Forest. Desired Future Conditions of the four LUDs in the Cholmondeley Project Area are summarized below (Forest Plan, Chapter 3).

Timber Production LUD

These lands are managed for the production of saw timber and other wood products on an even-flow, long-term sustained yield basis. The forested areas are healthy stands with a balanced mix of age classes. An extensive road system is developed for accessing timber as well as recreation, hunting, fishing, and other public and administrative uses. Roads may be closed, either seasonally or year-round, to address resource and other needs. Management activities will usually dominate most visible areas. A variety of wildlife habitats, predominately in the early and middle successional stages, are present. Approximately 38 percent of the National Forest System lands in the project area are designated as Timber Production (Table 1-1).

Modified Landscape LUD

Timber harvest and road development are allowed in the mix of resource activities that can occur in this LUD. The timber volume contributes to the Forest-wide sustained yield. The variety of successional stages created through timber harvest provides a range of wildlife habitat conditions. Management activities are subordinate on the landscape as seen in the foreground from popular travel routes and use areas. Management activities may dominate the middle and background landscape. Approximately 12 percent of the National Forest System lands in the project area are designated as Modified Landscape (Table 1-1).

Semi-remote Recreation LUD

The natural environment is generally unmodified in this LUD. Ecological processes and natural conditions are only minimally affected by past or current human uses or activities. Timber harvest and road construction are generally not permitted. Approximately one percent of the National Forest System lands in the project area are designated as Semi-remote Recreation (Table 1-1).

Old-growth Habitat LUD

In this LUD, old-growth forests are to be maintained and early seral conifer stands are to be managed to achieve old-growth forest characteristics. The objective is to achieve a diversity of old-growth habitat types and associated species, subspecies, and ecological processes. Timber harvest is not permitted except to achieve the LUD objectives. Development of roads and other facilities is avoided. Approximately 46 percent of the National Forest System lands in the project area are designated as Old-growth Habitat (Table 1-1), according to the existing condition in the Forest Plan.

Table 1-1: Project Area Land Use Designations and Acreages

Timber Production	Modified Landscape	Semi-remote Recreation	Old-growth Habitat	Other Ownership	Total Land Acres
19,916	6,373	637	24,328	1,518	52,772*

*Includes small islands within the project area.

Forest Plan Standards and Guidelines

The following standards and guidelines identify areas not available for programmed timber harvest; which are within land use designations that otherwise allow timber harvest. Each standard or guideline applies to a specific habitat or ecological component. These areas are included in the Semi-remote Recreation, Modified Landscape, Old-growth Habitat and Timber Production designations described above. Applicable Forest-wide standards and guidelines (Forest Plan, Chapter 4) are summarized in Chapter 2.

Beach and Estuary Fringe

The beach and estuary fringe extends approximately 1,000 feet inland from the mean high tide line and occurs along all coastlines. Programmed timber harvest is not allowed and roads are located outside the fringe whenever possible.

Karst and Caves

Potential karst areas have been identified; these are categorized as low, medium, or high vulnerability. High vulnerability areas are not suitable for programmed timber harvest.

Riparian

Riparian Management Areas are critical habitat areas for fish, other aquatic resources, and wildlife. These areas are delineated according to the "stream process group" direction in the Riparian forest-wide standards and guidelines (Forest Plan, pages 4-56 to 4-73). Some riparian boundaries may be adjusted after completion of a project-specific watershed analysis (Forest Plan, page 4-56 and Appendix J). Timber harvest is not scheduled in Riparian Management Areas.

Project Area Desired Future Condition

The desired future conditions described in Forest Plan land use designations helps identify the parameters and define the project-specific desired future conditions. The following description of the desired future conditions for the Cholmondeley Project Area, when compared with the existing condition, identifies opportunities for activities and guides project management consistent with Forest Plan direction and ecological conditions.

A portion of the Cholmondeley Project Area will have healthy stands of trees and a mix of age classes from young to mature. A mosaic of scattered old growth characterizes the project area with low-volume, unmerchantable stands interspersed with muskeg and shrublands.

Approximately one third of the project area qualifies as productive old growth or commercial forest land. The scattered, low-volume stands and rough terrain over the remaining two thirds of the project area limit opportunities for commercial timber harvest and road development. About eight percent of the land base is available for timber management. Though timber management will contribute toward a distribution of age classes, a balanced distribution may not be attainable in the project area.

Implementation of the Cholmondeley Project would contribute to the timber supply needed to meet market demands. It would provide resource production and local employment in the timber industries. The Forest Service proposes to use harvest methods other than traditional clearcutting in most of the harvest units. Feathering the unit edges and leaving residual trees and buffer strips in the units would modify the traditional clearcut. Some stands would be harvested using uneven-aged methods. These different treatments would temper the visual and watershed effects of logging. Domestic watersheds are managed to meet or exceed state water quality standards. Portions of the project area that may influence wind patterns in sensitive areas will be managed to minimize changes to the existing wind patterns.

Road access to units in the Cholmondeley Project Area would be limited to the Timber Production and Modified Landscape LUDs. Rugged terrain prevents this road system from connecting to the rest of Prince of Wales Island or interconnecting between sale areas in the project area. Access to managed areas near private land will address security issues. This access may enhance fishing, hunting, and other recreation opportunities in the Monie Lake area. The Recreation Opportunity Spectrum (ROS) would range from semi-primitive to roaded natural, which exceeds Forest Plan objectives for this area.

Recreation business opportunities may be negatively affected by harvest activities. Mariculture operations and other saltwater-based opportunities should not be significantly affected by harvest activities.

Old-growth Habitat reserves would retain their old-growth forest characteristics. The diversity of old-growth habitat types and associated species, subspecies, and ecological processes would continue to develop without human interference within the reserves.

Using Best Management Practices in road building and timber harvesting, soil productivity would be maintained.

Public Involvement

Scoping

The Council on Environmental Quality (CEQ) defines scoping as "...an early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action" (40 CFR 1501.7). The scoping process invites public participation and incorporates public comment in the decision-making process. Through scoping, the Forest Service identifies public issues and develops alternatives to the proposed action that respond to those issues. The scoping process begins early in the analysis and continues until a decision is made. In addition to the following public involvement, the Cholmondeley Project has been listed on the Tongass National Forest Schedule of Proposed Actions and included in the Tongass National Forest 10-Year Timber Sale Action Plan for several years. Both are available on the Tongass Website on the Internet at www.fs.fed.us/r10/tongass/.

The public has been invited to participate in the project in the following ways.

Notice of Intent (NOI)

A Notice of Intent was published August 15, 1997 in the *Federal Register* to announce that an EIS was to be undertaken for the project.

Public Mailing

In August 1997, a letter providing information and seeking public comment was mailed to approximately 375 individuals and groups that had previously shown interest in Forest Service projects in Southeast Alaska. This included federal and state agencies, Alaska Native governments and groups, municipal offices, businesses, interest groups, and individuals. A total of 42 responses to this mailing were received, and issues were identified for this project.

Local News Media

Meeting announcements and a scoping document describing the project were placed in the *Ketchikan Daily News* and in the *Island News*.

Public Meetings

Public meetings were held with residents of Saltery Cove, Sunny Cove, Clover Bay, and Kasaan in 1997, 1999, and 2000. Additional meetings with residents were held in Saltery Cove and Ketchikan. The Forest Service provided project area information, presented the proposed action, and discussed local concerns and interests. Community issues were incorporated in the Cholmondeley analysis, and Alternative 3 was developed to address these concerns.

Meetings with Agencies, Native Groups and Others

Other government agencies, including U.S. Fish and Wildlife Service, Alaska Department of Fish and Game, and the Department of Environmental Conservation, attended several interdisciplinary team meetings. These meetings produced Old-growth Reserve options and developed alternatives. Consultation with National Marine Fisheries Service was accomplished through the Essential Fish Habitat analysis. Other agencies were contacted for technical expertise in water quality, wildlife/fisheries regulations, and logging capabilities. The community of Kasaan was also consulted on its use of the project area.

Draft EIS

Availability of the Draft EIS for Public Comment

Availability of the Draft EIS was announced in the Federal Register on December 29, 2000 and through notices in local papers. The original deadline for public comment was February 19, 2001. A notice in the January 12, 2001 Federal Register corrected the comment period deadline to February 12, 2001. A notice of extension of the comment period with a new deadline of February 28, 2001 was published in the February 23, 2001 Federal Register. EIS documents were also mailed to federal and state agencies, Alaska Native and municipal offices, and anyone else who had requested them.

Subsistence Hearings

A subsistence hearing on the Draft EIS was held January 15, 2001 at the Community Hall in Kasaan, Alaska. Transcribed notes of all testimony are located in Appendix B.

Public Meetings

Public meetings to describe the analysis process and answer public questions were held in the locations listed below.

Saltery Cove (in Saltery Cove)	February 6, 2001
Organized Village of Kasaan (in Kasaan)	February 23, 2001
Clover Bay Residents (in Ketchikan)	March 6, 2001
Sunny Cove Residents (in Ketchikan)	March 6, 2001
Saltery Cove (in Saltery Cove)	December 2, 2002
Saltery Cove (in Saltery Cove)	February 5, 2003

Analysis and Incorporation of Public Comment

Comments on the Cholmondeley Draft EIS were received from 170 agencies, tribes, organizations, and individuals. The 170 letters, faxes, phone calls, and e-mail messages were analyzed using a process called content analysis. The interdisciplinary team analyzed and incorporated public comments and subsistence testimony into the Final EIS. The results of this analysis are included in Appendix B.

Final EIS

Availability of this Final EIS was announced in the *Federal Register* and through notices in the local media. Documents were also mailed to Federal and State agencies, Native and municipal offices, and others who requested a copy or provided input on this project.

Issues

Significant Issues

Significant issues for the Cholmondeley Project were identified through public and internal scoping. Similar issues were combined into one statement where appropriate. The following five issues were determined to be significant and within the scope of the project decision. These issues are addressed through the proposed action and alternatives to the proposed action. Additional concerns were considered but

determined not to be significant for the project decisions to be made. These concerns are discussed under "Other Issues and Concerns," pages 1-17 and 1-18.

Issue 1: Effects on Saltery Cove

Approximately eight year-round residences are located on 24 acres of private land in Saltery Cove. In addition, Sportsman's Cove Lodge entertains 1,000 clients annually, generating about $1,600,000 in gross revenue. The lodge's high-use period is from June through September.

Domestic Water

Residents and Sportsman's Cove Lodge owners are concerned that timber harvest and road construction would adversely affect their drinking water supplies. They get drinking water from four streams in the Saltery Cove area. Two of these streams are located on National Forest land in areas available for timber harvest and related developments.

Scenic Quality

The residents of Saltery Cove and the Sportsman's Cove Lodge owners are concerned about potential changes to the scenic quality of the National Forest resulting from timber harvest and associated activities. Lodge clients and local residents enjoy the scenery and solitude while canoeing or hiking around Swan Lake, fishing in Clarence Strait, sightseeing in Saltery Cove and McKenzie Inlet, or relaxing during quiet evenings. The clients' main activity is saltwater fishing outside of the project area, however, the natural scenic backdrop to the south of Saltery Cove is a major part of their "Alaska experience."

Lodge Business

Lodge owners are concerned that harvesting activity and its potential impacts to scenery and water quality would negatively affect lodge business.

Community Privacy and Security

Local residents identified the following concerns related to community privacy and security:

- Additional road access will disrupt the peace and security of their homes and cabins,
- Roads will promote All-Terrain Vehicle (ATV) use and invite more hunters to the area,
- Hunters will shoot firearms close to local homes and cabins, and
- Increased access will promote vandalism and theft.

Wind Patterns

Saltery Cove landowners are concerned that large clearcut openings south and west of their lands will compromise the safety of their anchorage by adversely affecting wind patterns in the cove.

Subsistence

Residents of Saltery Cove are concerned that timber harvest and road building, in project area and on Prince of Wales Island, will adversely affect their subsistence use of water, terrestrial wildlife, marine life, plant, and water quantity (for power production).

Key Issue Indicators

- **Domestic Water:** Open road miles, stream crossings, percent of watershed harvested, buffer width, amount of stand structure retained
- **Scenic Quality:** Visual quality objectives (VQOs), number and location of log transfer facilities, amount of harvest, recreation opportunity spectrum (ROS) classes
- **Lodge Business:** Impact to recreational workforce
- **Community Privacy and Security:** Classified roads, roads open to all-terrain vehicles (ATVs), distance to residences
- **Wind Patterns:** Non-clearcut opportunities, productive old growth (POG), acres in high-risk areas
- **Subsistence:** Population size, density, and distribution were analyzed through wildlife models, harvest data, conversations, and Forest Plan data. Opportunities to harvest resources were analyzed by miles of road built, miles of open road after project completion, and connection to other island roads.

Issue 2: Effects on Clover Bay

Clover Bay Lodge has averaged 300 clients per year over a 16-year period and generates about $350,000 per year in gross revenues. About 85 percent of clients return to the lodge on a regular basis. In recent years, the lodge has operated in the project area for about two and one-half months a year, June through mid-August, and has moved to Ketchikan for the off-season. The owners mentioned they might return to year-round occupancy in the cove. No private land is located in Clover Bay.

Scenic Quality

The operators of the Clover Bay Lodge are concerned about potential changes to the scenic quality of Clover Bay and National Forest land north of the bay resulting from timber harvest and associated activities. Their clients expect a "pristine" wilderness setting. They believe constructing and operating a log transfer facility (LTF) near the mouth of Clover Bay would affect clients' experiences as they travel to the fishing grounds or view marine mammals in the bay.

Lodge Business

Main activities of the Clover Bay Lodge clientele include saltwater fishing, crabbing, and wildlife and sea mammal viewing in Clarence Strait and Clover Bay. Most fishing occurs south from Clover Bay and Skin Island to the eastern side of Chasina Point. The lodge is moved from the area before the start of the commercial seine fishing season so their clients won't view the fishing fleet. The owners clean trash out of the bay and are concerned about increases in garbage associated with timber harvest, logging camps, and the LTFs. The lodge owners believe that any evidence of timber harvest, road construction, LTF construction, and associated camp activities would affect their clients "wilderness" experience and cause their lodge business to fail.

Domestic Water

The Clover Bay Lodge has a Forest Service permit for shore ties and a water line on National Forest System land. Lodge owners are concerned that harvest-related activities – road building in particular – would negatively affect the drinking water used for their lodge operations.

Wind

Clover Bay Lodge owners are concerned that harvest, road and LTF construction, and any resulting blowdown would increase the winds in Clover Bay. They fear the increased winds would increase the risk of blowdown in the domestic water stream and could potentially displace wildlife, which would affect the nature experiences of lodge guests.

Key Issue Indicators

- **Scenic Quality:** Visual quality objectives (VQOs), number and location of log transfer facilities, amount of harvest, recreation opportunity spectrum (ROS) classes
- **Lodge Business:** Impact to recreational workforce, location of LTF
- **Domestic Water:** Open road miles, stream crossings, percent of watershed harvested, buffer width
- **Wind Patterns:** Non-clearcut opportunities, productive old growth (POG), acres in high-risk areas

Issue 3: Effects on Sunny Cove

Seven homes are located in Sunny Cove. One home is a primary residence and the others are secondary homes and cabins.

Domestic Water

The residents of Sunny Cove are most concerned about the potential effects timber harvest, associated road construction, and potential windthrow may have on the quality of their domestic water. Residents get their drinking water from a stream that flows from National Forest System lands on the north side of Sunny Cove.

Mariculture

The community is concerned about water quality above the mariculture operation on the southwest side of the cove.

Scenic Quality

The residents enjoy the scenic quality and serenity of the area around Sunny Cove during their variable-length stays throughout the year. They are concerned about the amount of logging that has already occurred south of Cholmondeley Sound within their view. They believe the area around their homes is the only unlogged area remaining.

Privacy/Security

Residents are concerned about the increase in and types of use the new roads may bring. They anticipate the roads will invite all-terrain vehicle (ATV) use and provide easier access for hunters. They are concerned that improved access will disrupt the peacefulness of the area around their homes and increase the potential for vandalism. They anticipate an increase in hunting pressure and are concerned about the subsequent effects on the security of their homes.

Subsistence

Several residents fish commercially and maintain subsistence life-styles by hunting bear and deer. Other subsistence activities are centered on water-based activities in the

area. They anticipate an increase in hunting pressure and are concerned about the effects on subsistence use.

Wind

The community perceived wind pattern changes after the expansive clearcut timber harvest on private land south of Cholmondeley Sound. Following that harvest, they noticed that the community dock began to receive more strong winds. They are concerned that additional harvest will further compromise the cove as a secure anchorage.

Key Issue Indicators

- **Domestic Water:** Open road miles, stream crossings, percent of watershed harvested, buffer width
- **Mariculture:** Sediment to Sunny Cove
- **Scenic Quality:** Visual quality objectives (VQOs), number of log transfer facilities, amount of harvest, recreation opportunity spectrum (ROS) classes, amount of stand structure retained
- **Community Privacy and Security:** Classified roads, roads open to all-terrain vehicles (ATVs), distance to residences
- **Subsistence:** Restriction of access through open roads and connection to other roads and population density and distribution
- **Wind Patterns:** Non-clearcut opportunities, productive old growth (POG), acres in high-risk areas

Issue 4: Timber Sale Economics and Supply

The project area contains large areas of steep terrain that are difficult to access. The cost of applying more complicated silvicultural prescriptions to log these areas and address resource concerns may compromise the economic viability of the proposal. The amount of timber available for sale from National Forest System lands and how the timber supply affects local employment and revenues are other concerns.

Key Issue Indicators

- **Low and high market stumpage values**
- **Present net value**
- **Timber Industry Jobs**
- **Income generated**
- **NIC I and II**
- **Volumes offered (stable timber supply)**
- **Yarding costs**

Issue 5: Roadless Character

The entire project area is located within the eastern two thirds of the 81,281-acre McKenzie Roadless Area as inventoried in the 2003 Supplement to the Forest Plan. Portions of this roadless area have been designated for development since 1979, and

some portions have already been developed. The project area portion of the roadless area is a naturally fragmented mosaic of timber, muskeg, and subalpine vegetative types with many lakes. Access into the interior of the roadless area is primarily through Saltery Cove, Spiral Cove, Trollers Cove, Clover Bay and Sunny Cove. Floatplane access occasionally occurs at Monie and Clover Lakes. Potential road access to the interior of the area is very difficult; however, portions of the less rugged terrain have been developed.

Values include the scenery and solitude being marketed and enjoyed by local businesses and residents, especially when they are engaged in water-based activities. Proposed road building activities could change the recreation use patterns of the alpine areas and lakes and other areas within the project area by facilitating access to them. Proposed harvest activities could also affect options for future undeveloped designation of this portion of the McKenzie Roadless Area.

The Roadless Area Conservation; Final Rule (Roadless Rule) was signed by the Secretary of Agriculture in January 2001. This rule generally established prohibitions on road construction, road reconstruction, and timber harvest in inventoried roadless areas on National Forest System lands. As mentioned previously, the Cholmondeley Draft Environmental Impact Statement meets the exemption criteria included in the Roadless Area Conservation Rule. This project could move forward regardless of the Roadless Area Conservation Rule status.

Key Issue Indicators

- **Remaining old-growth**
- **Changes to recreation opportunity spectrum (ROS)**
- **Remaining roadless acres**
- **Number of new log transfer facilities**
- **Duration of equipment presence**
- **Effects on solitude**

Other Issues and Concerns

The following public concerns were considered but determined not to be significant issues. Some have been addressed through other processes or in the Forest Plan (see "Items Common to All Alternatives," in Chapter 2), or their resolution is beyond the scope of this project. Other issues considered beyond the scope of this document were covered under "National Issues" or "Forest Plan Issues" in Appendix B, Response to Comments on the Draft EIS.

Changing Land Use Designations

Land use designations (LUDs) were assigned through the forest planning process and are not reassessed in this document, except for Old-growth Habitat. The ID Team and an interagency team of biologists analyzed the old-growth reserve boundaries and have proposed changes to the boundaries, as described in Chapter 3. Land uses – in particular, near Saltery Cove, Clover Bay, and Sunny Cove – appear to be inconsistent with the current LUD of Timber Production. This issue will be examined during the midterm review of the Forest Plan. Alternatives and mitigation measures that are responsive to the significant issues will provide the decision maker with choices to maintain options for future LUDs.

Road Tie to the Rest of Prince of Wales Road System

Complex road design problems and their associated high costs make tying the Prince of Wales road system to the project area infeasible at this time. This is not part of the proposed action and will not be analyzed.

Make Sale Offerings to Small Businesses and Do Not Allow the Export of Spruce or Hemlock

The termination of the Long-term Sale Contract has opened all sales on the Tongass National Forest to independent bidders. Under some circumstances small sales are offered to very small operators only. We anticipate that a mix of sale sizes from this project area will be open to all bidders. The decision allowing the export of wood is made by the Regional Forester and is beyond the scope of this project.

The decision to export western redcedar is also approved at the regional office level, but may be requested, given the timber market at the time of timber sale appraisal and offer.

Other resource concerns that were deemed important but not significant to the decision are covered in the analysis and briefly discussed in Chapter 3. The effects of harvest on these resources were either insignificant or could be mitigated through Forest Plan standards and guidelines. These resources are listed in the Other Environmental Considerations section of Chapter 3.

Federal and State Permits, Licenses, and Certifications

To proceed with timber harvest as addressed in this EIS, various permits must be obtained from federal and state agencies. The following permits would be obtained.

U.S. Army Corps of Engineers

- Approval to discharge dredged or fill material into waters of the United States (Section 404 of the Clean Water Act of 1977, as amended).
- Approval of construction of structures or work in navigable waters of the United States (Section 10 of the Rivers and Harbors Act of 1899).

U.S. Environmental Protection Agency

- Storm water discharge permit
- National Pollutant Discharge Elimination System review (Section 402 of the Clean Water Act)

State of Alaska, Department of Natural Resources

- Authorization for occupancy and use of tidelands and submerged lands.

State of Alaska, Department of Environmental Conservation

- Certification of compliance with Alaska Water Quality Standards (Section 401 Certification).
- Solid Waste Disposal Permit (Section 402 of the Clean Water Act)

U.S. Coast Guard

- Coast Guard Bridge Permit (in accordance with the General Bridge Act of 1946) required for all structures constructed across navigable waters (within the tidal influence zone) of the United States.

Applicable Laws and Executive Orders

Shown below is a partial list of federal laws and executive orders pertaining to project-specific planning and environmental analysis on federal lands. While most pertain to all federal lands, some of the laws are specific to Alaska. Disclosures and findings required by these laws and orders are contained in Chapter 2 of this EIS

- Multiple-Use Sustained-Yield Act of 1960
- National Historic Preservation Act of 1966 (as amended)
- Wild and Scenic Rivers Act of 1968, amended 1986
- National Environmental Policy Act (NEPA) of 1969 (as amended)
- Clean Air Act of 1970 (as amended)
- Alaska Native Claims Settlement Act (ANCSA) of 1971
- Marine Mammal Protection Act of 1972
- Endangered Species Act (ESA) of 1973 (as amended)
- Forest and Rangeland Renewable Resources Planning Act (RPA) of 1974 (as amended)
- National Forest Management Act (NFMA) of 1976 (as amended)
- Clean Water Act of 1977 (as amended)
- American Indian Religious Freedom Act of 1978
- Alaska National Interest Lands Conservation Act (ANILCA) of 1980
- Archaeological Resource Protection Act of 1979
- Native American Graves Protection and Repatriation Act (1990)
- National Historic Preservation Act (1966 as amended)
- Cave Resource Protection Act of 1988
- Tongass Timber Reform Act (TTRA) of 1990
- Magnuson-Stevens Fishery Conservation and Management Act of 1996
- Executive Order 11593 (heritage resources)
- Executive Order 11988 (floodplains)
- Executive Order 11990 (wetlands)
- Executive Order 12898 (environmental justice)
- Executive Order 12962 (aquatic systems and recreational fisheries)

State of Alaska

In addition, the Coastal Zone Management Act (CZMA) of 1976, as amended, pertains to the preparation of an EIS. Federal lands are not included in the definition of the coastal zone as prescribed in the CZMA. However, the act requires that when federal agencies conduct activities or developments that affect the coastal zone, the activities or developments are consistent to the maximum extent practicable with the approved State Coastal Management Program. The Forest Service makes this determination.

The Alaska Coastal Management Plan incorporated the Alaska Forest Resources and Practices Act of 1979 (as amended) standards and guidelines for timber harvesting and processing. The Forest Service standards and guidelines and mitigation measures described in Chapters 2 and 3 of this document are comparable to or exceed state standards.

Availability of the Planning Record

An important consideration in preparation of this EIS has been reduction of paperwork as specified in 40 CFR 1500.4. In general, the objective is to furnish enough site-specific information to demonstrate a reasoned consideration of the environmental impacts of the alternatives and how these impacts can be mitigated. The planning record contains material that documents the NEPA process and analysis from the beginning of the project to the publication of the Final EIS.

The planning record is located at the Craig Ranger District in Craig, Alaska. Reference documents such as the Forest Plan, the Tongass Timber Reform Act, and the Resource Planning Act are available at public libraries around the region, as well as Forest Supervisor Offices in Ketchikan, Petersburg, and Sitka. The Forest Plan is also available on CD-ROM and on the internet (http://www.fs.fed.us/r10/tongass/).

Chapter 2

Alternatives

Chapter 2
Alternatives

Introduction

Chapter 2 describes and compares alternatives considered by the Forest Service for the Cholmondeley Project. It includes:

- A discussion of how alternatives were developed,
- Changes between the draft and final EISs,
- Features common to all alternatives,
- A description and map of each alternative considered in detail, and discussions of how each alternative addresses the issues,
- A comparison of the alternatives focusing on the significant issues, and
- A discussion of mitigation and monitoring measures specific to the project area.

Chapter 2 is intended to present the alternatives in comparative form to sharply define the issues and provide a clear basis for choice for the decision maker and the public (40 Code of Federal Regulations [CFR] 1502.14).

Chapter 2 summarizes information from Chapter 3, "Affected Environment and Environmental Consequences." Chapter 3 contains the detailed scientific basis for establishing baselines and measuring the potential environmental consequences of each of the alternatives.

Alternative Development Process

Landscape Analysis

The Cholmondeley Project Area is part of the larger South Prince of Wales Planning Area; which also includes areas to the south surrounding Moira Sound. A timber economic analysis of the entire planning area was conducted to synthesize various resource conditions, objectives, and opportunities. The landscape analysis identified logical harvest areas and their priority for treatment and environmental analysis. The current and desired future conditions of the landscape (Chapter 1) were considered in the priority ranking.

The Cholmondeley Project Area was given the highest priority because it had more economically available timber than the southern project areas. Through further analysis, the interdisciplinary team (IDT) determined that much of the project area consists of isolated, low-volume timber and only three areas of forest provide economical timber harvest opportunities.

The Cholmondeley Position Statement documents the landscape analysis process and incorporates the 1995 Logging System Transportation Analysis (LSTA) as part of the Cholmondeley planning record. The LSTA shows how the forested lands in the project area could be harvested. The interdisciplinary team combined logical groups of logging system settings from the LSTA into potential harvest units. These potential units were used to determine the volume available from the Cholmondeley Project Area. This preliminary unit pool included more than 8,550 acres. Additional analysis of the unit pool identified some units that would not meet Forest Plan standards and guidelines if harvested. Other areas were deferred from harvest because they would be uneconomical to harvest even in good market conditions.

After the Cholmondeley Project Position Statement was written, the Forest Supervisor made the decision to move forward with the project. At that point, it was included in the 10-year sale plan. During the position statement process, the interdisciplinary team chose to eliminate the area east of Swan Lake from further consideration because of difficult access and very scattered, low value timber stands. Access to this area from the north, through other land ownerships, is unlikely. Sealaska Corporation considers it uneconomical to plan a LTF east of Saltery Cove because of the poor quality and minor amount of timber available on their lands. Therefore, road access to the high- and medium-volume timber would have to be from the west after the selected lands northeast of Swan Lake are conveyed. A road from McKenzie Inlet would have to cross a large riparian area and stream south of Swan Lake. By eliminating timber harvest east of Swan Lake, potentially severe watershed impacts were avoided.

Although the State of Alaska has some timber in this area, mainly within the beach buffer, the interdisciplinary team assumed the state would plan little or no harvest, based on discussions with the Alaska Department of Natural Resources Forestry Division in Ketchikan. It is possible that state lands adjacent to Saltery Cove may be conveyed to the University of Alaska; however, no state lands have been conveyed to the University at this time. They are designated for "general use," which means that they could be logged if the conditions were right, i.e. the timber is merchantable, sale is economically feasible, and access is available. The area is not on the State's five-year timber sale plan.

The Forest Service did not pursue underwater or above water surveys on potential LTF sites in the area between Giants Head and Skowl Point because of private upland ownerships. In addition, navigation charts indicate that this area would be too shallow, rocky, and small to accommodate a LTF and rafting area.

As required by the Forest Plan, an interagency team of biologists reviewed the locations of the Small Old Growth reserves within the Project Area. All of the action alternatives considered for the project propose the same OGR configuration except for Alternative 7. Alternative 7 analyses the effects of adopting the interagency team's biologically preferred alternative for the OGR locations. Alternative 1, the no action alternative, contains the Forest Plan OGR configuration.

Both the IDT and the interagency team, proposed a modification to the medium reserve located within the project area to meet Forest Plan standards and guidelines (see Chapter 3 Biodiversity).

Proposed Action

The ID team verified the preliminary timber diagnoses for each potential unit based on short- and long-term landscape or resource objectives (Chapter 1). The unit pool and

the roads needed to access the units were then evaluated in the field. This unit pool was also used in the project's public scoping and identified as the Proposed Action. The original Proposed Action (Chapter 1) was modified slightly as a result of field analysis and is described in Alternative 5.

Potential harvest units were validated, modified, or deferred based on field investigations. For example, field investigations revealed that road construction to the LTF site between Skowl Point and Trollers Cove would be difficult because of numerous cliffs and scattered timber volume. The expense of building a road through this rugged terrain would not be recovered with the value of the timber volume. Modifications were also made to meet Forest Plan standards and guidelines. For instance, if an unmapped stream or wetland was discovered during field reconnaissance, the appropriate forest-wide standards and guidelines (Riparian or Wetland) were applied. Some units were adjusted to have more logical boundaries, facilitate logging systems, or prevent isolating timber stands. All harvest prescriptions reflect Forest Plan standards and guidelines, incorporate field investigations and ID team analysis, and respond to public and interagency input.

The modifications described above led to the current harvest unit pool of 1,511 acres in 44 units. The proposed action and all action alternatives were developed from this potential pool. Site-specific descriptions and resource considerations for each potential harvest unit (unit cards) are included in the planning record for this EIS. The planning record also includes proposed access methods (road cards).

Alternative Development

The modified Proposed Action (Alternative 5) is one of many possible approaches to harvesting timber in the project area. It was developed during the early planning phase of this project. The Proposed Action and alternatives to the proposed action are different responses to the significant issues of the project area. The alternatives represent site-specific proposals developed through the public involvement process by the ID team. For example, road construction in previously unroaded areas was a concern identified during scoping; therefore, the ID team formulated alternatives that do not require road construction. Alternatives address multiple issues where they are compatible. Each alternative is also designed to meet the stated purpose and need for the project and the project-specific desired future conditions. In some instances, these concerns were addressed by deferring units from harvest. In other instances, the concerns have been, or would be, addressed during the design and implementation of the proposed activities (see "Items Common to all Alternatives" and "Mitigation"). High-resolution topographic maps, aerial photos, field reconnaissance information, and resource data available in geographic information system (GIS) format were used for unit evaluation and design.

Changes Between Draft and Final EIS

New Information

Additional site-specific information about the Cholmondeley has become available since the publication of the Draft EIS. In addition, the 1999 Forest Plan Record of Decision was rescinded and the 1997 Decision has been reinstated. Sources and types of new information include:

- Information from analysis of Alternatives 6 and 7 (see below)
- Information from analysis of the Island Point LTF

- Information from various lodges as to effects of timber harvest – the economic impacts are described under Issue 4, Chapter 3. The biological concerns are described under Issue 2 in Chapter 3 and in Appendix B, Response to Comments, Issue 5b.

Public Input

Public input on the Draft EIS included:

- ANILCA subsistence hearing testimony,
- Written comment letters (in planning record),
- Information recorded at meetings with residents of Saltery Cove, Clover Bay, and Sunny Cove,
- Information recorded at interagency meetings, and
- Appendix B of the Final EIS, Public Comment and Responses and ANILCA Subsistence Hearing Testimony has been added to the Final EIS. Public comment on the Draft EIS led to revision and clarifications of sections in the Final EIS, described below.

Improved Analysis

New information and public input are reflected in revisions to text and tables in many sections of the Final EIS. The major revisions are described below by resource area. Revisions to unit and road cards are shown in Appendices B and C. A list of mitigation measures is included as Appendix D.

In some cases, new information caused a change to unit or alternative design that lessened environmental effects. Environmental consequences were not reanalyzed for resources with lessened impacts because of these changes. Examples of this type of change include eliminating some roads and changing harvest methods for some units to helicopter yarding.

Additional alternatives

Analysis of the effects of Alternatives 6 and 7 has been included in discussions of all the issues. The additions of Alternatives 6 and 7 helped to provide a better range of alternatives while looking at specific issues in each of these alternatives. Alternative 6 was added to analyze the economics as well as Clover Bay Issues related to the Island Point LTF. Alternative 7 was developed to better depict the interagency biological team old-growth reserve recommendations for a wider range of options for the decision maker. See each issue in Chapter 3 for descriptions of effects of Alternatives 6 and 7.

Effects on Saltery Cove (Issue 1, Chapter 3)

More thorough discussions on domestic water and water quality are included in the Final EIS.

Effects on Clover Bay (Issue 2, Chapter 3)

More thorough analyses of the lodge business, domestic water, water quality standards, and wind effects are included in the FEIS.

Effects on Sunny Cove (Issue 3, chapter 3)

A discussion of domestic water in Sunny Cove is included in the FEIS.

Updated Economic data (Issue 4, chapter 3)

New helicopter and cable yarding costs were developed from Region 10 cost collection in 2000. New end-product selling values were developed from 1999 cost collection

updated to fourth quarter of 2001. Manufacturing costs, market indexes, and profit and risk methodology were also updated. Additional analysis using these new figures were run for alternatives 6 and 7. A more thorough discussion was included on the recent history of timber industry employment in Southeast Alaska. Expanded discussions were also included for the NEPA Economic Analysis Tool and cedar export in Alaska.

Biodiversity and Old Growth

All old-growth reserve proposals are analyzed in the FEIS. See the wildlife section in Chapter 3.

Silviculture and Timber

A more thorough analysis of cumulative effects is summarized and explains the tie to many other resources in the FEIS. See the silviculture section in Chapter 3.

Transportation and Facilities

More thorough analysis of log transfer facilities and analysis of a new LTF at Island point are included in the FEIS. The planning record contains addenda to the LTF report.

Wildlife

More thorough analysis of Old Growth Reserve options and effects, wildlife species, and cumulative effects to wildlife is included in the Final EIS.

Response to Comments

Discussion and clarification of issues identified in comments received on the Draft EIS are included in Appendix B and throughout the Final EIS.

Items Common to All Alternatives

The analysis documented in this EIS discloses the effects that may occur from implementing the actions proposed in each alternative. Appropriate design and implementation can mitigate or prevent adverse impacts. ID team specialists processed field inventories, aerial photographs, and other digital data through GIS to analyze resource conditions and the effects of management on the project area. Resource concerns and methods to avoid or mitigate negative impacts are listed on harvest unit cards (Appendix B), road segment cards (Appendix C), or the mitigation table (Appendix D). These recommendations are then incorporated in the design of each unit or road segment. Resource concerns and mitigation measures may be refined further during final layout. Key Forest Plan direction and design features of all the alternatives are listed below and address issues specific to this analysis.

All Forest Plan land use designations standards and guidelines have been incorporated into this project.

Biodiversity, Old Growth, and Wildlife

Each alternative complies with the Forest Plan conservation biology strategy designed to ensure well-distributed, viable populations of wildlife.

The old-growth habitat reserves (OGR) mapped in the Forest Plan FEIS have been evaluated for size, spacing, and habitat composition. The boundaries of four small old-

growth reserves (614, 615, 616, and 674), and one medium old-growth reserve (617, 675, and 676), have been evaluated with interagency biologist involvement and adjustments have been proposed to more thoroughly include criteria from Appendix K of the Forest Plan. Two adjustment scenarios have been proposed. Alternatives 2, 3, 4, 5, and 6 include the ID Team scenario, while Alternative 7 includes the interagency biologists' scenario for old growth reserves. More in-depth discussion of proposed old-growth reserve adjustments is included in the wildlife section of Chapter 3 of this EIS.

Fish and Marine Habitats

Landscape, watershed, and site-level conditions were assessed in the Cholmondeley watershed analysis. Riparian Management Area (RMA) boundaries were applied in all watersheds following process group guidelines (Forest Plan, pages 4-57 to 4-73). Some RMA boundaries exceed minimum requirements to address resource concerns. These are summarized below.

- Buffer widths were increased from 100 feet to 200-250 feet around Swan and Monie Lakes. No harvest would occur in these buffers to protect high quality, anadromous fish-rearing habitat, recreation use opportunities, and water quality.
- The no-cut buffer along the main stem of Sunny Creek was increased from 100 feet to 200-300 feet to address site-specific resource conditions. The wider buffer would have more wind resistance, provide for woody debris recruitment, and inhibit potential soil transport to the stream. These functions would preserve the integrity of the floodplain and maintain high quality fish habitat.
- The stream buffer on the south tributary of Monie Lake was increased from 100 feet to 200 feet. The wider buffer would protect the integrity of the floodplain and maintain high-quality fish habitat.
- Buffers extend to the slope breaks on all Class III streams. Leaving additional trees beyond the slope break is recommended on some streams for a "reasonable assurance of windfirmness." The width of this zone (varies 25-140 feet) is based on the risk to windthrow. The recommendations for windfirm zones are based on stream characteristics, existing blowdown patterns, and harvest unit configurations in relation to wind patterns.

Constructing a road southwest of Sunny Creek was eliminated from consideration. The ID team believed timber objectives could be met and the mariculture operation in Sunny Cove protected by not building this road. The integrity of the Old-growth Habitat LUD would also be preserved.

The Forest Plan standards and guidelines (Forest Plan, pages 4-8, 4-53) apply to all streams that support fish populations (Class I and II) and Class III streams (not supporting fish populations) in the project area.

Harvest unit boundaries were designed to avoid detrimental impacts to water quality and fish habitat.

Log transfer facilities were designed to address site-specific conditions and to minimize potential impacts to the marine environment and other resources.

Heritage Resources

Areas considered as having a high probability of containing heritage resources (cultural sites) have been intensively surveyed by heritage resource specialists. All identified cultural sites have been avoided. It has been determined that no heritage resources eligible for the National Register of Historic Places will be affected under any of the alternatives. The Alaska State Historic Preservation Officer has concurred with this recommendation.

Karst

High vulnerability karst is removed from the suitable timber base (Forest Plan, page 4-19). All project activities avoid these areas and meet Forest Plan standards and guidelines for low and moderate vulnerability areas (Forest Plan, pages 4-18 to 4-20, Appendix I). Karst areas are noted on the unit cards (Appendix B) along with specific management requirements such as a minimum of partial log suspension. No road construction or quarry development is planned within or adjacent to karst areas.

Scenery

Harvest units within priority travel route or priority use area viewsheds have been designed to meet the visual quality objectives of the Modified Landscape or Timber Production LUDs (Forest Plan, pages 4-75 thru 4-80). Harvest units, as designed in all alternatives, meet or exceed the required visual quality objective. Silvicultural and harvest strategies that achieve these visual quality objectives mitigate concerns about increases in wind velocity or funneling. For instance, silvicultural systems that leave structure in the units and keep the canopy openings small decrease the potential for blowdown. Helicopter yarding precludes road construction, leaves fewer openings and more structure in the openings. These conditions also disrupt wind speed and direction.

Subsistence

All alternatives have been evaluated in compliance with ANILCA, Title VIII, Section 810.

Soils, Water Quality and Wetlands

Potential harvest units with more than an acre of slopes greater than 72 percent gradient have received an on-site analysis of slope stability before implementation (Floodplains, Soils and Wetlands Resource Report, project file). These units have special provisions to mitigate the potential effects of harvesting these areas, including leave tree requirements and/or log suspension requirements for yarding. All of the isolated areas near steep slopes or areas with greater than 72 percent slopes that have not been visited before the ROD will remain unharvested. Any additional inclusions of steep slopes found during sale layout will be recorded in the presale change analysis. These areas have special provisions to mitigate the potential effects of harvesting including leave tree requirements and/or log suspension requirements during yarding. Only areas with a mass movement index (MMI) less than MMI 4 are included in the unit pool.

Roads are located to minimize construction on slopes greater than 67 percent gradient and other unstable sites. All roads have been located to avoid high value wetlands.

Additional mitigation measures were developed for activities upstream of private domestic water users. These measures include:

- Increasing stream buffers on those streams used by the residents of Saltery and Sunny Coves,
- Storing petroleum products and refueling and maintenance of equipment outside of domestic use watersheds,
- Timing of road construction to avoid extremely wet periods,
- Using log stringer bridges in all domestic water supply watersheds to avoid instream work,
- Developing rock pits outside of domestic use watersheds,
- Developing a site-specific erosion control plan for each stream tributary to drinking water use,
- Placing hay bales and other sediment traps in ditch lines,
- Removing Unit 675-027 from harvest consideration to protect water quality in Sunny Cove,
- No stream crossing on Sunny Creek,
- Implementing two-aged management prescriptions,
- Prohibiting motor vehicle access following salvage operations and silvicultural surveys, and
- Storing roads (removing drainage structures) following salvage operations and silvicultural surveys.

Timber Harvesting and Transportation

The project area contains three areas of relatively concentrated suitable timber intermixed with areas of scattered low-volume timber. These areas of scattered low volume have marginal harvest economics and were deferred from consideration early in the planning process. Emphasis on a one-entry opportunity during the unit reconnaissance phase resulted in a close look at areas immediately adjacent to proposed units. Applying standards and guidelines to the generally rugged topography resulted in very little suitable timber being isolated or left behind. Thus, the analysis in this EIS assumes that no future entries to harvest old growth will be planned in the project area. The salvage of windthrown timber or cedar products would be the only reasonably foreseeable harvest beyond the harvest planned in this EIS.

One or more of the following harvest systems are prescribed in all harvest units:

- Modified clearcuts and other even-aged systems
- Two-aged harvest with reserves

All alternatives will retain varying amounts of trees in the stand after harvest. See the silviculture section or unit cards for more details.

The windthrow risk was assessed for each unit. Harvest prescriptions incorporate methods and designs that reduce windthrow potential and wind effects at the anchorages.

Forest Plan standards and guidelines and Best Management Practices (BMPs) would be applied during road construction. BMPs would reduce sedimentation and maintain channel integrity and fish passage. Special attention would be given to crossings on domestic water source streams (Appendix C) to address residents and lodge owners concerns regarding water quality in these areas.

Mitigation measures are incorporated during road design, location, and construction to protect soil, water, and fisheries resources (Appendix C). Timing road construction to reduce potential impacts on incubating salmon eggs restricts the road construction window. The Craig Ranger District has been successful in implementing the following BMPs on Class II streams and expanding the construction window on projects with timing restrictions:

- Installing temporary log stringer bridges allows equipment to cross a creek without any instream construction.
- Installing culverts or bridges during low flow periods or when streams are frozen minimizes impacts to fisheries resources.

The district fisheries biologist will be consulted on a case-by-case basis to determine appropriate options for each site.

The road management plan includes closing all roads to non-administrative traffic immediately following construction. Classified roads would be closed to all motorized vehicle traffic, except administrative use, and would be put in storage after silvicultural regeneration surveys have been completed and timber salvage opportunities have been evaluated (3-4 years after harvest). Putting a road in storage requires removing all stream culverts, stabilizing unstable cut and fill slopes, constructing waterbars, and installing permanent barriers at the beginning of the road (Transportation Report, project file). These actions would mitigate concerns about noise, disturbance, and potential vandalism associated with motorized access as well as provide for resource protection.

Threatened, Endangered and Sensitive Species

The U.S. Fish and Wildlife Service and the National Marine Fisheries Service concur with conclusions of the biological assessments for threatened or endangered species. A biological assessment was written for all threatened or endangered species potentially inhabiting the project area (Appendix D). We concluded no listed species nor its habitat would be adversely affected under any alternative when Forest Plan standards and guidelines are applied.

Biological evaluations were completed for all sensitive species potentially inhabiting the project area (Appendix D). The Forest Plan standards and guidelines are applied for each sensitive species where habitat exists.

Alternatives Considered but Eliminated from Detailed Study

Analysis of LTF sites had a major impact on alternatives to be considered. Twenty-two potential LTF sites were considered and analyzed to varying degrees. Potential sites such as areas near Trollers Cove, Monie Lake, and Saltery Cove were eliminated

because of poor flushing, hazardous navigation, poor wind exposure, and other reasons. Logging options then became narrowed to Sunny Cove, McKenzie Inlet, and Clover Bay.

Seven alternatives were considered during the planning process. Three alternatives were combined into one and are not included individually in the EIS for detailed study. These alternatives are briefly described in this section along with the reasons for not considering them further.

The communities in the project area expressed strong sentiment regarding timber harvest. Though their resource issues were generally the same, the communities are separated by distance and rugged terrain. The ID team initially considered three alternatives to specifically address each community's issues. The main characteristics of the individual community alternatives concerned helicopter yarding, road closures, alternative silvicultural systems, and particular LTF locations. However, since none of the three alternatives could meet all of the community concerns on the project area, we combined the alternatives into one community alternative (Alternative 3) and incorporated mitigation measures specific to each community, as developed from community input. Analyzing these alternatives separately would not "sharply define the issues and provide a clear basis for choice," and would have pitted one community against another.

Alternatives Considered in Detail

The Proposed Action (Alternative 5) and six other alternatives are considered in detail. The Council on Environmental Quality (CEQ) regulations (40 CFR 1502.14d) require a "no action" alternative be analyzed in every EIS. This alternative represents the existing condition against which other alternatives are compared. Alternative 1 is the no-action alternative. Alternatives 2-7 represent different means of satisfying the purpose and need, by responding with different emphases to the significant issues discussed in Chapter 1.

Alternative 1 (No Action)

This alternative proposes no new timber harvest or road construction on the Cholmondeley Project Area. It does not preclude timber harvest from other areas or from the Cholmondeley Project Area in the future. The map of Alternative 1 (Figure 2-1) shows the current vegetation distribution, streams, roads, and other developments. Products and values currently supplied would continue unaltered.

Alternative 1 addresses the significant issues in the following ways.

Issue 1 - Effects on Saltery Cove

Water quality of the streams that supply the community's drinking water would remain at natural levels. The local conditions that control water quality would be subject to natural forces and management of adjacent state and private land.

Sportsman's Cove Lodge clients and local residents would continue to enjoy the scenery and solitude of Swan Lake and the community setting. They would not be affected by timber harvest and associated activities. The portion of Sportsman's Cove Lodge business that is dependent on the natural setting associated with Swan Lake and lands south of Saltery Cove would not be impacted by timber harvest activities.

Security provided by the undeveloped lands south of the private lands would not change.

Wind patterns, as influenced by timber stands to the south and west of Saltery Cove, would be subject to natural conditions only.

Hunting access and patterns of subsistence use would remain at current low levels.

Issue 2 - Effects on Clover Bay

Clover Bay Lodge clients would continue to experience the scenery and "wilderness experience," when fishing and viewing wildlife in Clarence Strait and Clover Bay. Their experience would not be disturbed by timber harvest, road construction, or a log transfer facility. The portion of Clover Bay Lodge business dependent on the natural setting would not be impacted by timber harvest activities.

Water quality for Clover Bay Lodge would remain at its current level and subject to naturally occurring conditions.

Wind patterns would remain at natural levels.

Issue 3 - Effects on Sunny Cove

Water quality in the stream that supplies the community's drinking water would remain at natural levels. The local conditions that control water quality would be subject to natural forces.

Local residents would continue to experience the scenery and serenity of Sunny Cove. They would not be affected by timber harvest and associated activities.

Hunting access, patterns of subsistence use, and private property security would remain at current low levels.

Wind patterns potentially influenced by timber stands to the north and west of Sunny Cove would be subject to natural conditions only.

Issue 4 - Timber Sale Economics and Supply

No timber volume would be produced from the Cholmondeley Project Area. Therefore no associated costs, revenues, or jobs would be generated.

Issue 5 - Roadless Character

This portion of the McKenzie Roadless Area would remain unchanged. Primitive recreation opportunities would be available in over 90 percent of the roadless area. Scenic values and opportunities for solitude would remain intact. Access to lakes and other points of interest on the project area would continue to be by floatplane or foot travel.

Alternative 2

No road or LTF construction is proposed in Alternative 2 to reduce impacts to the roadless character of the McKenzie Roadless Area. Alternative 2 also addresses concerns about security, domestic water quality, and wind patterns, as expressed by the residents and lodge owners in the project area. Helicopters would be used to yard timber from all harvest units. Helicopter yarding allows more trees to be left in the units than ground-based methods. Thus, the visual impacts of harvest are moderated.

Alternative 2 proposes to harvest 1,511 acres of commercial forest land in 44 harvest units (Figure 2-2). This proposed harvest would produce about 35.6 MMBF of timber.

The average harvest unit size is 34 acres. The project area would be divided into five sale areas, the smallest of which would be about 5.1 MMBF.

Alternative 2 addresses the significant issues in the following ways:

Issue 1 - Effects on Saltery Cove

Effects on streams used for domestic water would be limited to possible blowdown of stream buffers left on the upper reaches of two streams. The absence of road construction in this alternative will maintain fine sediment inputs near natural conditions.

Residents of Saltery Cove and visitors to Swan Lake are likely to see and hear helicopters and hear chainsaws during the one season of logging operations. They are also likely to see log rafts in McKenzie Inlet, Skowl Arm, and Saltery Cove. Harvest of Units 614-002, 614-034a, and 614-034b would reduce the amount of tree cover on lands west and south of the lake. Lake users may observe parts of the backline of Unit 614-002. The natural setting immediately around the recreation site near the lake would not be directly affected. The 200-foot no-cut buffer and partial cut between the buffer and the clearcut portion of the unit would block the view of the clearcut. Residents and visitors to Saltery Cove may observe relatively sharp contrasts in color and texture between the cut and uncut areas.

Information provided by the lodge owners indicates a moderate risk of losing recreation industry jobs (Social Economic Report, project file).

General public access would remain similar to current access because no new roads would be constructed in the Saltery Cove area. Any change to the security of homes and businesses in Saltery Cove would be minimal. No change is expected in subsistence use.

Harvesting all units south and west of Saltery Cove could cause an increase of wind funneling that may affect residences in Saltery Cove (Chapter 3).

Issue 2 - Effects on Clover Bay

Clover Bay Lodge clients will see and hear helicopters as they carry and drop logs in Clover Bay during the season of harvest operations. The backline of Unit 616-110 and a portion of the harvested ground would be visible from the south side of the bay. Units 616-022, 616-023, and 616-123 would all be visible to some extent from Clarence Strait. The wide stream buffers and reserve trees in these units temper the visual effects of timber harvest. The visual effects are within the thresholds set by the Visual Quality Objective (VQO) standards for the middle and foreground (Chapter 3).

No LTF would be built in Clover Bay but lodge clients would see log barges, camp and support barges, and tug and boat activity. Clover Bay is the only safe moorage within a reasonable distance of the area. Logging support vessels may seek refuge in the bay, particularly at night or during storms. The Forest Service has no control over permitting activities that are not tied to the shoreline.

Information provided by the lodge owners indicates a moderate risk of losing recreation industry jobs (Social Economic Report, project file).

Water quality in the stream used by Clover Bay Lodge would likely remain at or near natural conditions.

Wind patterns in Clover Bay should remain at or near natural levels. The buffer planned for the domestic water creek should protect against potential windthrow. Indirect tree blowdown is a natural occurrence and is a part of the forest disturbance pattern.

Issue 3 - Effects on Sunny Cove

Water quality in the Drinking Water watershed, used by Sunny Cove residents, would likely remain at or near natural conditions. Windthrow within the stream buffer on Drinking Water Creek is the only possible source of harvest-related fine sediment. Water quality entering the private domestic water intakes should be similar to natural conditions (Chapter 3, Issue 3, Domestic Water).

Units 675-031 and 675-032 may be partially visible from the homes in Sunny Cove. The small unit size and number of trees left on the site would reduce the visual effects of harvest as seen from the homes. Residents may see and hear helicopters and chainsaws during the two seasons anticipated for logging operations.

General public access would remain similar to current conditions because no roads would be built north of Sunny Cove. Thus, there would be little change in access to residents' homes. No change is expected in subsistence use.

Harvesting Units 675-032, 674-032 and 675-031 may influence wind patterns in the cove. The unit size and shape, and trees left standing in the units should limit potential wind funneling. No change would be anticipated in the safety of the anchorage.

Issue 4 - Timber Sale Economics and Supply

The Cholmondeley Project Area would produce an estimated 35.6 MMBF of timber. This volume would be divided into five sales with an average volume of 7.1 MMBF. This volume excludes incidental right-of-way volume and translates into approximately 188 timber jobs.

Using the NEAT program, the expected bid value of this timber is -$7,323,042 (-$113/CCF) with 6-inch utility standards and domestic processing. With 10-inch utility standards and red cedar exported, the expected bid value is -$1,843,072 (-$34/CCF). Although Alternative 2 may appear to be uneconomical and not viable at low market conditions, it was used to compare costs with cable systems, not only on an alternative basis, but also on a sale-offering basis. This way, offerings could stand on their own merit for economic comparisons.

Issue 5 - Roadless Character

Following timber harvest, 18,843 acres of the project area would remain classified as Primitive and 17,144 acres would classify as Semi-Primitive, Non-Motorized the rest of the project area would be classified in non-primitive ROS classes. These adjacent areas define the majority of the project area that maintains a natural, undeveloped character. The actual area without roading within the McKenzie Roadless Area would not be reduced. Changes in the scenic values and opportunities for solitude are described under Issues 1, 2, and 3, above. The wildlife values are discussed in Chapter 3.

A major portion of the remaining roadless area includes the rugged terrain and lake basins in the center of the project area and the coastal area on the northern side of

Cholmondeley Sound entrance (Recreation, Roadless Areas, Wild and Scenic Rivers, and Wilderness Report, project file).

Alternative 3

Alternative 3 designs timber harvest methods to address concerns of the adjacent communities. It addresses concerns of domestic water quality, solitude and the natural setting, security, and wind patterns as expressed by the residents and lodge owners in the project area.

Alternative 3 proposes to harvest 1,489 acres of commercial forest land in 43 harvest units. This proposed harvest would produce about 34.5 MMBF of timber. The average harvest unit size is 35 acres. The project area would be divided into five sale areas, the smallest of which would be about 5.1 MMBF. Helicopters would yard the units north of Clover Bay, south of Saltery Cove, and west of Sunny Cove. One LTF would be constructed east of Sunny Cove in Cholmondeley Sound. Logs from the units north and east of Sunny Cove would be yarded by a combination of ground-based equipment and helicopters. Ground-based equipment would require 4.6 miles of classified road construction. Unit 616-010, near Clover Bay, would not be harvested (Fig 2-3).

Issue 1- Effects on Saltery Cove

The prescriptions for Units 614-001a, 614-001b, 614-002, 614-034a, and 614-034b would retain more trees by creating a tree density gradient from the uncut areas around Swan Lake and the drinking water streams to the clearcut openings. These prescriptions include wider buffers around lakes and streams than the other action alternatives (Appendix B).

No roads would be constructed within the watersheds of the two streams used as drinking water sources. The logs from the units in these watersheds would be yarded using helicopters. Water quality in streams used for domestic water could be affected by the blowdown of stream buffers left on the upper reaches of two streams. The absence of road construction in this alternative will maintain fine sediment inputs near natural conditions.

Although portions of Units 614-001a and 614-001b would be visible from the mouth of Saltery Cove, the density and distribution of trees left in these units would soften the visual impact on the natural landscape. Swan Lake visitors may observe parts of the backlines of Unit 614-002.

Information provided by the lodge owners indicates a low risk of losing recreation industry jobs (Social Economic Report, project file).

In this alternative, hours of operation for helicopter yarding logs into Saltery Cove would be limited between Memorial Day and the end of September from 7:00 am to 3:00 pm. This daily operational constraint will extend the period of helicopter logging. A timber sale contract special provision would be submitted to the Regional Office for approval to restrict helicopter operations in Saltery Cove. Due to the economics of helicopter operations, the possibility exists that no purchaser will commit to a daily timing restraint. No timing or seasonal restrictions would be placed on helicopter operations in McKenzie Inlet. A restriction would be placed on helicopter operations to avoid repeated flights within a quarter mile of the known eagle nests in the area. Visitors to Swan Lake would likely see and hear helicopters and chainsaws during the one to two seasons of logging operations.

General public access would be similar to current conditions because no new road construction is proposed. Therefore, timber harvest activities would pose minimal risk to the security of residents and users of Saltery Cove. No change is expected in subsistence use.

Though it is possible for local wind speeds to increase as a result of timber harvest, we do not anticipate any changes from natural conditions to result from harvest activities described in this alternative. Beach buffers of 1,000 feet should protect anchorages and facilities in Saltery Cove. In addition, unit layout and size and the trees left standing in the unit would mitigate potential wind funneling effects.

Issue 2 - Effects on Clover Bay

Unit 616-010 would not be harvested; therefore no units would be visible from Clover Bay. Units 616-022, 616-023, and 616-123 are all visible from Clarence Strait to some extent. The wide stream buffers and reserve trees temper the visual effects of harvesting trees from these units. This area would meet higher VQO standards than required for the middle and foreground.

Information provided by the lodge owners indicates a low risk of losing recreation industry jobs (Social Economic Report, project file).

Helicopter operations in Clover Bay would be restricted between June 1 and August 15. A timber sale contract special provision would be submitted to the Regional Office for approval to restrict helicopter operations in the bay. Helicopter flight paths would also be restricted over eagle nests in Clover Bay. Clover Bay Lodge clients may hear helicopters and see log drops in Clarence Strait during the one to two seasons of logging operations.

A LTF would not be built in Clover Bay, but lodge clients would see log barges, camp and support barges, and increased tug activity. Clover Bay is the only safe moorage within a reasonable distance of the area, so logging-support vessels may seek refuge in the bay, particularly at night or during storms. The Forest Service has no control over permitting activities that are not tied to the shoreline.

Water quality in the stream used for drinking water by Clover Bay Lodge would be undisturbed by harvest activities since Unit 616-010 would not be harvested.

Wind effects are the same as Alternative 2.

Issue 3 - Effects on Sunny Cove

Water quality in the Drinking Water Watershed used by Sunny Cove residents could be adversely affected by fine sediment generated from road construction and log haul and by potential blowdown of one stream buffer. An exceptionally high standard of site-specific mitigation measures described in road and unit cards, combined with compliance monitoring, provide reasonable assurance that state water quality standards will be achieved at private water supply intakes. Turbidity monitoring results will determine compliance and need for corrective actions.

The small unit size and number of reserve trees left on the harvest units would decrease the visual effects of harvest as seen from homes in Sunny Cove. Residents would see and hear logging activity during the two to four seasons of operations.

To access units north of Sunny Cove, 4.6 miles of classified road construction and one LTF would be constructed (Figure 2-3). A Code of Federal Regulations (CFR) road closure order would close all roads to all motorized vehicles other than those authorized during road construction, timber harvest, post-harvest activities, and potential salvage operations. The roads would be placed in storage following silvicultural evaluation of the harvest units and any salvage of potential blowdown. There may be an increase in hiking use on the Forest road, but since the road is located more than 1/4 mile from private homes, we expect minimal changes in the security of the area.

Road connections to the existing LTF in the Polk Inlet area were considered; however, due to the amount of new road construction, we determined that a road connection with the greater Prince of Wales Island road system would have many resource impacts and would be economically infeasible.

Additional access to the area would be available at the LTF. Roads will be closed to vehicle traffic after salvage and silvicultural exams. There could be additional hunting pressure in the area of the LTF and from the roads. We anticipate some competition between subsistence users and some competition from Ketchikan hunters.

Harvesting Units 675-032, 674-032, and 675-031 may influence wind patterns in the cove. The small unit size and number of trees left standing on the units should break the wind and prevent funneling. Mandatory 1,000-foot beach buffers should protect anchorage and facilities in Sunny Cove.

Issue 4 - Timber Sale Economics and Supply

The Cholmondeley Project Area would produce an estimated 34.5 MMBF of timber. This volume would be divided into five sales with an average volume of 6.8 MMBF. This volume excludes incidental right-of-way volume and translates into approximately 179 timber jobs.

Using the NEAT program, the expected bid value of this timber is -$6,093,178 (-$91/CCF) with 6-inch utility standards and domestic processing. With 10-inch utility standards and red cedar exported, the expected bid value is -$750,491 (-$13/CCF).

Issue 5 - Roadless Character

Following timber harvest, 18,843 acres of the project area would remain classified as Primitive and 17,710 acres would be classified as Semi-Primitive, Non-Motorized the rest of the project area would be classified in non-primitive ROS classes. Therefore, approximately 2/3 of the project area maintains a natural, undeveloped character. The actual area within the entire McKenzie Roadless Area would be reduced by about 2 percent. Changes in the scenic values and opportunities for solitude are described under Issues 1, 2, and 3, above. The wildlife values are discussed in Chapter 3.

The remaining roadless area includes the rugged terrain and lake basins in the center of the project area and the coastal area on the northern side of Cholmondeley Sound entrance. Access to lakes and inland points of interest would be similar to current conditions except in Sunny Cove. The road north of Sunny Cove would provide a foot trail through the Drinking Water Watershed and lower part of the Sunny Creek Watershed. Temporary disturbance from the logging operations would last from 3 to 5 years (Recreation, Roadless Areas, Wild and Scenic Rivers, and Wilderness Report, project file).

Alternative 4

Alternative 4 emphasizes timber harvest and offering timber sales with the highest economic returns.

Alternative 4 proposes to harvest 941 acres of commercial forest land in 25 harvest units. This proposed harvest would produce about 25.0 MMBF of timber. The average harvest unit size is 36 acres. The project area would be divided into three sale areas, the smallest of which would be about 7.6 MMBF. Most of the units would be yarded using ground-based equipment. This would require building 14.9 miles of classified road and three LTFs. The LTFs would be built in McKenzie Inlet, the mouth of Clover Bay, and east of Sunny Cove in Cholmondeley Sound. Units along West Arm, Cholmondeley Sound and north of Monie Lake would be deferred from harvest (Figure 2-4).

A short segment of road north of Clover Bay LTF will be built through the beach buffer to access all units north of Clover Bay in Alternatives 4, 5, and 7. Other routes were analyzed. This route was considered to have the least potential for affecting other resources such as water quality and fish habitat in the Clover Bay Drinking Water Watershed. The sediment potential was greatly reduced with the new route.

Issue 1- Effects on Saltery Cove

The harvest prescriptions for Units 614-001a, 614-001b, 614-002, 614-034a, and 614-034b at Saltery Cove are similar to Alternative 2, except fewer trees would be left standing in the units. These prescriptions include buffers around lakes and streams, and 'no-cut' areas adjacent to domestic water streams. Road construction, log haul, and timber harvest activities could generate fine sediment and adversely affect water quality in two streams. Moving the public water supply intake upstream of the road is a possible mitigation measure that could be used to prevent impacts to water quality. An exceptionally high standard of site-specific mitigation measures described in road and unit cards, combined with compliance monitoring, provide reasonable assurance that state water quality standards will be achieved at private water supply intakes. Turbidity monitoring results will determine compliance and need for corrective actions.

Residents and visitors of Saltery Cove and Swan Lake are likely to see and hear logging activity during the two to four seasons of operations. As in Alternative 2, visitors and residents will see two small, distinct clearcut areas on the slopes behind the residences and lodge (Figure 3-4). Swan Lake visitors may observe parts of the backline of Unit 614-002. Using cable logging systems and removing more trees from the units would result in more visible harvest units. Visitors to Swan Lake would see fill slopes along portions of the road.

Information provided by the lodge owners indicates a moderate risk of losing recreation industry jobs (Social Economic Report, project file).

Road connections to proposed LTFs near Sunny Cove and sites north of Clover Bay at Trollers Cove and Island Point were considered; however, we determined that due to the amount and difficulty of new road construction, a road connection would have many resource impacts and would be economically infeasible.

To access the harvest units south of Saltery Cove, 4.2 miles of classified road and one LTF would be constructed (Figure 2-4). A CFR road closure order would close all roads to all motorized vehicles other than those authorized during road construction,

timber harvest, post-harvest activities, and potential salvage operations. The roads would be placed in storage following silvicultural evaluation of the harvest units and any salvage operations. There may be an increase in hiking use on the Forest road, but since the road is located more than ¼ mile from private homes and not connected to any other road system, we expect minimal change in the security of the area.

We expect the distance between the harvest units and Saltery Cove would be enough to negate most of the wind effects in the cove. The unit layout and size, and amount of tree cover remaining should break wind speed. The forested private or state lands surrounding the cove should protect anchorages and facilities in Saltery Cove.

Additional access to the area would be available at the LTF. Roads will be closed to vehicle traffic after salvage and silvicultural exams. There could be additional hunting pressure in the area of the LTF and from the roads. We anticipate some competition between subsistence users and some competition from Ketchikan hunters.

We would not anticipate significantly increased safety risks of theft or vandalism to the homes, lodge or anchorage, nor do we anticipate a significant increase in risk associated with the random discharge of firearms (Silviculture and Timber Resource Report, project file). The safety risks would be comparable to current risks associated with local resident hunters.

Issue 2 - Effects on Clover Bay

Units north of Monie Lake would not be harvested under this alternative, so very few changes to the landscape would be visible from Clarence Strait. The backline of Unit 616-010 and a portion of harvested ground would be visible from the south side of Clover Bay. The visual effects would be well within the VQO standards for the middle and foreground. Clover Bay Lodge clients would see and hear logging activity during the two to three seasons of harvest operations.

Six miles of classified road would be constructed to access the harvest units in Clover Bay (Figure 2-4). A CFR road closure order would close all roads to all motorized vehicles other than those authorized during road construction, timber harvest, post-harvest activities, and potential salvage operations. The roads would be placed in storage after silvicultural evaluation of the completed harvest units and potential salvage opportunities. There may be an increase in hiking use on the Forest road.

A LTF would be constructed in Clover Bay under this alternative. The LTF would alter the recreation setting in Clover Bay. Road connections to proposed LTFs near Sunny Cove, Trollers Cove, and Island Point were considered; however due to the amount of new road construction, we determined that a road connection would have many resource impacts and would be economically infeasible.

Information provided by the lodge owners indicates a high risk of losing recreation industry jobs (Social Economic Report, project file).

The road built through the watershed may affect water quality in the streams used for private domestic water. Sediment would likely be generated from the road during construction and haul. Water turbidity would be monitored at stream crossings tributary to private water supplies to ensure compliance with state water quality standards.

The chance of windthrow will increase as road corridors open up the forest canopy. We do not anticipate that additional windthrow will significantly affect the domestic water creek. Windthrow may also be associated with the sort yard and LTF development. Trees close to the beach are generally more windfirm than those in interior lands, which will help retain the visual screening. We do not anticipate increased impacts to the lodge due to changing wind patterns.

Issue 3 - Effects on Sunny Cove

Water quality in the Drinking Water Watershed, used by Sunny Cove residents, could be adversely affected by fine sediment generated from road construction and log haul and by potential blowdown of one stream buffer. An exceptionally high standard of site-specific mitigation measures described in road and unit cards, together with compliance monitoring, provide reasonable assurance that state water quality standards will be achieved at private water supply intakes. Turbidity monitoring results will determine compliance and need for corrective actions.

The small unit size and number of reserve trees left in the harvest units would decrease the visual effects of harvest as seen from homes in Sunny Cove. Residents would see and hear logging activity during the two to four seasons of operations.

To access the harvest units north of Sunny Cove, 4.6 miles of classified road and one LTF would be constructed. The roads would be placed in storage following silvicultural evaluation of the harvested units and salvage opportunities. Road connections to the existing LTF and roads in the Polk Inlet area and to the proposed developments in Clover Bay were considered; however, due to the amount and difficulty of new road construction, we determined that a road connection would have many resource impacts and would be economically infeasible.

Additional access to the area would be available at the LTF. Roads will be closed to vehicle traffic after salvage and silvicultural exams. There could be additional hunting pressure in the area of the LTF and from the roads. We anticipate some competition between subsistence users and some competition from Ketchikan hunters.

A CFR road closure order would close all roads to all motorized vehicles other than those authorized during road construction, timber harvest, post-harvest activities, and potential salvage operations. Hiking use may increase on the Forest road but since the road would be located more than ¼ mile from private homes, we expect minimal changes in the security of the area. Harvesting Units 675-032, 674-032, and 675-031 may influence wind patterns in the cove. The small unit size and number of trees left standing in the units should break the wind and prevent funneling. Beach buffers of 1,000 feet are designed to protect anchorages and facilities in Sunny Cove; therefore, no changes are anticipated to the safety of the anchorage.

Issue 4 - Timber Sale Economics and Supply

The Cholmondeley Project Area would produce an estimated 25.0 MMBF of timber. This volume would be divided into three sales with an average volume of 7.9 MMBF. This volume excludes incidental right-of-way volume and translates into approximately 125 timber jobs.

Using the NEAT program, the expected bid value of this timber is -$2,024,657 (-$45/CCF) with 6-inch utility standards and domestic processing. With 10-inch utility standards and red cedar exported, the expected bid value is $981,026 ($26/CCF).

Issue 5 - Roadless Character

Following timber harvest, 27,288 acres of the project area would remain classified as Primitive and 14,646 acres would classify as Semi-Primitive, Non-Motorized the rest of the project area would be classified in non-primitive ROS classes. Therefore, the majority of the project area maintains a natural, undeveloped character. The actual area within the McKenzie Roadless Area would be reduced by approximately 5 percent. Changes in the scenic values and opportunities for solitude are described under Issues 1, 2, and 3, above. The wildlife values are discussed in Chapter 3.

The remaining roadless area would include the broad coastal area from Kluanil Cove to south of Island Point, across the rugged terrain and lake basins of the central part of the project area, to the northern side of Cholmondeley Sound entrance. New access points to lakes and inland points of interest would be available at McKenzie Inlet, Clover Bay, and Sunny Cove. Temporary disturbance from the logging operations would last between 3-5 years (Recreation, Roadless Areas, Wild and Scenic Rivers, and Wilderness Report, project file).

Alternative 5 (Preferred)

Alternative 5 is the updated proposed action and the preferred alternative in this Final EIS. This alternative emphasizes timber harvest to most closely meet outputs anticipated in the Forest Plan. All timber units available at this time are proposed for harvest. Silvicultural prescriptions and logging systems are designed to be the most economical while addressing resource concerns. Forest Plan standards and guidelines are implemented to meet required resource protection.

Alternative 5 proposes to harvest 1,511 acres of commercial forest land in 44 harvest units. This proposed harvest would produce about 37.7 MMBF of timber (Figure 2-5). The average harvest unit size is 34 acres. The project area would be divided into five sale areas, the smallest of which would be about 5.1 MMBF. Most of the units would be yarded using ground-based equipment. This would require constructing 22.3 miles of classified road and 3 LTFs. The LTFs would be built in McKenzie Inlet, the mouth of Clover Bay, and east of Sunny Cove in Cholmondeley Sound.

A short segment of road north of Clover Bay LTF will be built through the beach buffer to access all units north of Clover Bay in Alternatives 4, 5, and 7. Other routes were analyzed. This route was considered to have the least potential for affecting other resources such as water quality and fish habitat in the Clover Bay Drinking Water Watershed. The sediment potential was greatly reduced with the new route.

Issue 1- Effects on Saltery Cove

The harvest prescriptions for Units 614-001a, 614-001b, 614-002, 614-034a and 614-034b near Saltery Cove are similar to Alternative 2, except fewer trees would be left standing in the units. These prescriptions include buffers around lakes and streams, and 'no-cut' areas adjacent to domestic water streams. Road construction, log haul, and timber harvest activities could generate fine sediment and adversely affect water quality in two streams used for domestic water. Moving the public water supply intake upstream of the road is a possible mitigation measure that could be used to prevent impacts to water quality. An exceptionally high standard of site-specific mitigation measures described in road and unit cards, combined with compliance monitoring, provide reasonable assurance that state water quality standards will be achieved at private water supply intakes. Turbidity monitoring results will determine compliance and need for corrective actions.

Residents and visitors of Saltery Cove and Swan Lake are likely to see and hear logging activity in the distance during the two to four seasons of operations. Visitors and residents of Saltery Cove would see two small, distinct harvest areas on the slopes behind the residences and lodge from the cove (Figure 3-4). Swan Lake visitors may observe parts of the backline of Unit 614-002. Information provided by the lodge owners indicates a moderate risk of losing recreation industry jobs (Social Economic Report, project file).

To access the harvest units south of Saltery Cove, 4.3 miles of classified road would be constructed. Road connections to the existing LTF in Polk Inlet and the greater Prince of Wales road system and to a possible LTF site in Trollers Cove were considered. However, these options were economically infeasible and would have greater resource impacts due to the amount of new road construction.

A CFR road closure order would close all roads to all motorized vehicles other than those authorized during road construction, timber harvest, post-harvest activities, and potential salvage operations. The roads would be placed in storage following post-harvest silvicultural evaluation and potential salvage opportunities. Hiking on the roads may increase.

Additional access to the area would be available at the LTF. Roads will be closed to vehicle traffic after salvage and silvicultural exams. There could be additional hunting pressure in the area of the LTF and from the roads. We anticipate some competition between subsistence users and some competition from Ketchikan hunters.

We do not anticipate significantly increased safety risks to the homes or lodge beyond the normal risks associated with hunters and vandalism of anyone living in a remote location (Silviculture and Timber Resource Report, project file).

We expect the distance between the harvest units and Saltery Cove would be enough to negate any possibility of wind effects reaching the cove. The unit layout and size, and amount of tree cover remaining should break wind speed. The forested private or state lands surrounding the cove should protect anchorages and facilities in Saltery Cove. We do not anticipate increased safety risks to the anchorage (Silviculture and Timber Resource Report, project file).

Issue 2 - Effects on Clover Bay

The backline of Unit 616-010 and a portion of harvested ground would be visible from the south side of Clover Bay. Units 616-022, 616-023, and 616-123 are all visible from Clarence Strait to some extent. The wide stream buffers and number of reserve trees would temper the visual effects of timber harvest. The visual effects of timber harvest would be well within the VQO standards of the middle and foreground. Clover Bay Lodge clients would see and hear logging activity during the two to four seasons of harvest operations. The scenery would be modified as seen from Clarence Strait.

Changes to the landscape, as seen from Clover Bay, would be slight except for the LTF, which would alter the recreation setting.

Information provided by the lodge owners indicates a high risk of losing recreation industry jobs (Social Economic Report, project file).

Access to the harvest units north of Clover Bay requires constructing 13.5 miles of classified road. Road connections to proposed LTFs near Sunny Cove, Trollers Cove,

and Island Point were considered; however, due to the amount of new road construction, we determined that a road connection would have many resource impacts and would be economically infeasible.

The roads would be closed by CFR to all motorized vehicle traffic, except as authorized, during all phases of operations, including road construction, timber harvest, silvicultural examination, and salvage opportunities. The roads would be placed in storage following the completion of silvicultural evaluation of harvest and potential salvage. There may be an increase in hiking use of the Forest roads.

Issue 3 - Effects on Sunny Cove

Water quality in the Drinking Water Watershed, used by Sunny Cove residents, could be adversely affected by fine sediment generated from road construction and log haul and by potential blowdown of one stream buffer. An exceptionally high standard of site-specific mitigation measures described in road and unit cards, combined with compliance monitoring, provide reasonable assurance that state water quality standards will be achieved at private water supply intakes. Turbidity monitoring results will determine compliance and need for corrective actions.

The small unit size and number of reserve trees left in the harvest units would decrease the visual effects of timber harvest as seen from homes in Sunny Cove. Residents would see and hear logging activity during the three to four seasons of operations.

Access to the harvest units north of Sunny Cove requires the construction of 4.6 miles of classified road and one LTF (Figure 2-5). Road connections to the existing LTF at Polk Inlet and to the proposed LTF at Clover Bay were considered. However, these road connections were economically infeasible and would have greater resource impacts because of the amount of new construction involved.

A CFR road closure order would close all roads to all motorized vehicles other than those authorized during road construction, timber harvest, post-harvest activities, and potential salvage operations. The roads would be placed in storage after potential salvage and silvicultural evaluation of harvested units. Hiking use may increase on the forest road but since the road is located more than ¼ mile from private homes, minimal changes in the security of the area are expected.

Additional access to the area would be available at the LTF. Roads will be closed to vehicle traffic after salvage and silvicultural exams. There could be additional hunting pressure in the area of the LTF and from the roads. We anticipate some competition between subsistence users and some competition from Ketchikan hunters.

Harvesting Units 675-032, 674-032, and 675-031 may influence wind patterns in the cove. The small unit size and number of trees left standing on the units should break wind speed. Beach buffers of 1,000 feet should protect anchorages and facilities in Sunny Cove. No changes to the safety of the anchorage should occur (Silviculture and Timber Resource Report, project file).

Issue 4 - Timber Sale Economics and Supply

The Cholmondeley Project Area would produce an estimated 37.7 MMBF of timber. This volume would be divided into five sales with an average volume of 7.1 MMBF. This volume excludes incidental right-of-way volume and translates into approximately 188 timber jobs.

Using the NEAT program, the expected bid value of this timber is -$3,442,146 (-$46/CCF) with 6-inch utility standards and domestic processing. With 10-inch utility standards and red cedar exported, the expected bid value is $1,683,322 ($27/CCF).

Issue 5 - Roadless Character

Following timber harvest, 18,843 acres of the project area would remain classified as Primitive and 17,136 acres would classify as Semi-Primitive, Non-Motorized the rest of the project area would be classified in non-primitive ROS classes. Therefore, the majority of the project area maintains a natural, undeveloped character. The actual area within the McKenzie Roadless Area would be reduced approximately by 7 percent. Changes in the scenic values and opportunities for solitude are described under Issues 1, 2, and 3, above. The wildlife values are discussed in Chapter 3.

The large remaining roadless area is an unbroken parcel of land between Spiral Cove and Kluanil Cove. It includes the rugged terrain and lake basins in the center of the project area and the coastal area on the northern side of Cholmondeley Sound entrance. New access points to lakes and inland points of interest would be available at McKenzie Inlet, Clover Bay, and Sunny Cove. The road north of Sunny Cove would provide a convenient trail through the Drinking Water Watershed and lower part of the Sunny Creek Watershed (Recreation, Roadless Areas, Wild and Scenic Rivers, and Wilderness Report, project file). Temporary disturbance from the logging operations would last between three to five years.

Alternative 6

This alternative emphasizes timber harvest to most closely meet outputs anticipated in the Forest Plan while addressing public concerns in the issue areas to the fullest extent possible. Unit 614-005 is dropped due to extremely poor economics. The road to Saltery Cove units has been dropped to address water quality, wind, security, and scenic quality issues. Helicopter logging will be used in the Saltery Cove area to address visual, watershed, and lodge business concerns. Silvicultural systems proposed under this alternative will retain more structure on many planned units.

A new LTF is proposed west of Island Point to service Dr. Point and North Monie offering areas. This eliminates the LTF in Clover Bay, the road from Clover Bay south of Unit 616-007, and many visual and lodge business concerns. The northern portion of Unit 616-010 will be dropped for visual concerns. A new road location for the 2180000-3 road originating from the Island Point LTF will result in the conversion of Units 616-022, -023, -024, and –123 from cable to helicopter yarding. Roads will be closed to public vehicles after sale and post-sale activities are complete.

Log stringer bridges will be used on all stream crossings in the Drinking Water Watershed of Sunny Cove. Roads will be closed to public vehicles during construction and after sale and post-sale activities are complete. Firearms will be prohibited on Sunny Cove roads during construction and logging activities.

Alternative 6 proposes to harvest 1,486 acres of commercial forest land in 43 harvest units. This proposed harvest would produce about 35.4 MMBF of timber (not including right-of-way volume) (Figure 2-5). The average harvest unit size is 35 acres. The project area would be divided into five sale areas, the smallest of which would be about 5.1 MMBF. Helicopter yarding is planned for 63 percent of the units, while 77 percent have at least a portion of the acres planned for helicopter yarding. This alternative would require construction of 16.4 miles of classified road and two LTFs. The LTFs would be built west of Island Point and east of Sunny Cove in

Cholmondeley Sound.

Issue 1 – Effects on Saltery Cove

The harvest prescriptions for Units 614-001a, 614-001b, 614-002, 614-034a, and 614-034b at Saltery Cove are similar to Alternative 3 with more structure retention than in other alternatives. By eliminating roads, state water quality standards will be met.

Residents and visitors of Saltery Cove and Swan Lake are likely to see and hear logging activity in the distance during one to two seasons of operation. Visitors and residents of Saltery Cove would see two small, distinct harvest areas on the slopes behind the residences and lodge from the cove (Figure 3-4). Swan Lake visitors may observe parts of the backline of Unit 614-002. Based on information provided by the lodge owners, we would anticipate a low risk of losing recreation industry jobs (Social and Economic Report, project file).

We expect the distance between the harvest units and Saltery Cove would be enough to negate any possible wind effects reaching the cove. The unit layout and size, and tree cover remaining should break wind speed. The forested private or state lands surrounding the cove should protect anchorages and facilities in Saltery cove. No increased safety risks to the anchorage are anticipated (Silviculture and Timber Resource Report, project file).

The scenery impacts in this alternative would be the same as Alternative 3. The units above Saltery Cove and Swan Lake would be logged by helicopter. Units 614-001a and 001b and Unit 614-002 all have the same combination of clearcut with reserves and partial cut prescriptions as in Alternative 3. As in Alternatives 2 and 3, areas that are harvested by helicopter will have less visual impact than areas logged by cable due to the absence of often highly visible cable yarding corridors. As with Alternative 3, there will be no roading in this area and no LTF at the mouth of McKenzie Inlet. Hence the only visual impact associated with the transfer of logs from the unit to the water will be the temporary presence of barges, either near the mouth of Saltery Cove or McKenzie Inlet.

Hunting access and patterns of subsistence use would remain at current low levels.

Issue 2 – Effects on Clover Bay

The backline of Unit 616-010 will be lowered and will not be visible from the bay. Moving the LTF to Island Point will reduce impacts to clients fishing in Clarence Strait or recreating near Clover Bay. The new location of Road 2180000-5 may be more visible when fishing near Island Point. The LTF and associated sort yard would be visible to Trollers Cove cabin visitors. Four units north of Monie Lake would be slightly less visible from Clarence Strait due to their conversion from cable to helicopter yarding. The visual effects of timber harvest would be well within the VQO standards of the middle and foreground. Clover Bay Lodge clients would see and hear logging activity in the distance for potentially two to four seasons of harvest operations.

Road connections to proposed LTFs near Sunny Cove, Trollers Cove, and Island Point were considered, but, due to the amount and difficulty of new road construction, a road connection was economically infeasible and would have greater resource impacts.

Based on information provided by the lodge owners, we would anticipate a low to moderate risk of losing recreation industry jobs (Social and Economic Report, project file).

Access to the harvest units north of Clover Bay requires constructing 11.8 miles of classified road. The roads would be closed by CFR to all motorized vehicle traffic, except as authorized, during all phases of operations, including road construction, timber harvest, silvicultural examination, and salvage opportunities. The roads would be placed in storage following the completion of silvicultural evaluation of harvest and potential salvage. There may be an increase in hiking use of the Forest roads.

Water quality in the streams would remain similar to current conditions. Streams used for domestic water supply would not be affected due to helicopter logging of units 009 and 010.

Wind effects are the same as in Alternative 4.

From within Clover Bay, there will no visual impacts from harvest units, roads or log transfer sites. The LTF proposed just inside the entrance to the bay is dropped in this alternative, as are any roads near this bay. The two units closest to this bay, 617-009 and 616-010 will be logged by helicopter rather than roaded. In addition, the upper portion of Unit 616-010 that is visible from the south side of Clover Bay will be dropped.

Units to the north of Clover Bay that sit on the slopes facing Clarence Strait will be helicopter logged as in Alternative 2 (Units 616-018, 019, 022, 023, 123, 124 and 615-125). Because of the absence of cable yarding corridors and the retention of unmerchantable trees, the contrast created by these units will be softened to a degree. In this alternative, a LTF will be located just outside Trollers Cove, just west of Island Point. Extending from this LTF will be a road running along the lower slopes of the ridge on which many of the above units are located.

Portions of the road south of the LTF will be visible from the saltwater areas south of Island Point where some fishing occurs either by Clover Bay clients or by Ketchikan or Prince of Wales Island residents. The visual impacts from this road will be either from a few visible rock cuts or from a narrow shadow created across the forested slopes by the right-of-way clearing.

Issue 3 - Effects on Sunny Cove

Water quality in the Drinking Water Watershed used by Sunny Cove residents could be adversely affected by fine sediment generated from road construction and log haul and by potential blowdown of one stream buffer. An exceptionally high standard of site-specific mitigation measures described in road and unit cards, combined with compliance monitoring, provide reasonable assurance that state water quality standards will be achieved at private water supply intakes. Turbidity monitoring results will determine compliance and need for corrective actions.

The small unit size and number of reserve trees left in the harvest units would decrease the visual effects of timber harvest as seen from homes in Sunny Cove. Residents would see and hear logging activity during the three to four seasons of operations.

Access to the harvest units north of Sunny Cove requires the construction of 4.6 miles of classified road and one LTF (Figure 2-5). Road connections to the existing LTF at

Polk Inlet and to the proposed LTF at Clover Bay were considered. These road connections were economically infeasible, however, and would have greater resource impacts because of the amount of new construction involved. A CFR road closure order would be issued to keep the roads closed to all motorized vehicles, except for administrative use, including road construction and timber harvest. The roads would be placed in storage after potential salvage and silvicultural evaluation of harvested units. Hiking use may increase on the forest road but since the road is located more than ¼ mile from private homes, we expect minimal changes in the security of the area.

Additional access to the area would be available at the LTF. Roads will be closed to vehicle traffic after salvage and silvicultural exams. There could be additional hunting pressure in the area of the LTF and from the roads. We anticipate some competition between subsistence users and some competition from Ketchikan hunters.

Harvest of Units 675-032, 674-032, and 675-031 may influence wind patterns in the cove. The small unit size and trees left standing on the units should break wind speed. Beach buffers of 1,000 feet should protect anchorages and facilities in Sunny Cove. We expect no effect to the safety of the anchorage (Silviculture and Timber Resource Report, project file).

Impacts to the scenery resources are the same as for Alternatives 3 and 5.

Issue 4 - Timber Sale Economics and Supply

An estimated 35.4 MMBF (without ROW volume included) of timber would be produced from the Cholmondeley Project Area. This volume would be divided into five sales with an average volume of 6.8 MMBF. This volume excludes incidental right-of-way volume and translates into approximately 179 timber jobs.

Using the NEAT program, the expected bid value of this timber is -$5,364,037 (-$75/CCF) with 6-inch utility standards and domestic processing. With 10-inch utility standards and red cedar exported, the expected bid value is -$161,523 (-$3/CCF).

Issue 5 - Roadless Character

Following timber harvest, 18,843 acres of the project area would remain classified as Primitive and 17,626 acres would classify as Semi-Primitive, Non-Motorized the rest of the project area would be classified in non-primitive ROS classes. Therefore, the majority of the project area maintains a natural, undeveloped character. The actual area within the McKenzie Roadless Area would be reduced by approximately 6 percent. Changes in the scenic values and opportunities for solitude are described under Issues 1, 2, and 3, above. The wildlife values are discussed in Chapter 3.

The large area remaining as roadless includes the rugged terrain and lake basins in the center of the project area and the coastal area on the northern side of Cholmondeley Sound entrance. New access points to lakes and inland points of interest would be available at McKenzie Inlet, Clover Bay, and Sunny Cove. The road north of Sunny Cove would provide a convenient trail through the Drinking Water Watershed and lower part of the Sunny Creek Watershed (Recreation, Roadless Areas, Wild and Scenic Rivers, and Wilderness Report, project file). Temporary disturbance from the logging operations would last between 3-5 years.

Alternative 7

Alternative 7 has been added to the analysis since the Draft EIS to better display the Interagency team's preferred old growth configuration for medium and small reserves. This alternative emphasizes the best biological mix of reserves as preferred by the interagency team of biologists. It seeks to meet the intent of the Forest Plan (Appendix K) and TPIT recommendations from a purely plant and wildlife perspective without regard to Land Use Designations. By displaying this perspective, we have a full range of old growth reserve options at the disposal of the decision maker. See the Wildlife Habitat section of Chapter 3 for a more in-depth discussion on the proposed modifications.

Helicopter yarding will be used for all units in Alternative 7, therefore, no roads or LTFs are proposed. Several units have been dropped due to the proposed shift in old growth reserve boundaries including 614-001b, -002, 616-010, -011, -012, -018, -019, -020, 675-033, -037, 676-462, -472, -484, -489, -500, and -592. Portions of units dropped include 75 percent of Units 614-001a and 614-034b. Other units included in Alternative 7 are 614-005, 615-025, 616-024, -132, 674-032, -537, -548, -549, -550, -551, and –583.

Alternative 7 proposes to harvest 355 acres of commercial forest land in 13 harvest units. This proposed harvest would produce about 7.8 MMBF (not including right-of-way volume) of timber (Figure 2-5). The average harvest unit size is 27.3 acres. The project area would be divided into three sale areas, the smallest of which would be about 1.6 MMBF. Silvicultural systems proposed under this alternative would be similar to those planned in Alternative 2.

Issue 1- Effects on Saltery Cove

The harvest prescriptions for Units 614-001a and 614-034b at Saltery Cove are similar to effects in Alternative 4. By eliminating roads, state water quality standards will be met.

Residents and visitors of Saltery Cove and Swan Lake are likely to see and hear logging activity in the distance during a short season of operation. From the cove, visitors and residents of Saltery Cove would see one small, distinct harvest area on the slopes behind the residences and lodge. Based on information provided by the lodge owners, we would anticipate a low risk of losing recreation industry jobs (Social and Economic Report, project file).

We expect the distance between the harvest units and Saltery Cove and the small amount of openings would negate any possible wind effects reaching the cove. The unit layout and size, and tree cover remaining should break wind speed. The forested private or state lands surrounding the cove should protect anchorages and facilities in Saltery Cove. We do not anticipate increased safety risks to the anchorage (Silviculture and Timber Resource Report, project file).

This alternative would eliminate all of Unit 614-001b and much of Unit 614-001a. Only a very small portion of Unit 614-001a would be visible from inside the cove and from the entrance to the cove. This would result in a Partial Retention objective easily being met in this viewshed. In the Swan Lake viewshed, the impacts would also be much less than the other alternatives. Units 614-002 in the foreground and 614-034a in the middleground are dropped in this alternative. Only a portion of Unit 614-034b on the middleground slopes at the head of the lake is included in this alternative. Hence there will be no impact in the foreground portion of the Swan Lake viewshed,

while, in the middleground, Unit 034b will meet a modification VQO as it does in the other alternatives.

Hunting access and patterns of subsistence use would remain at current low levels.

Issue 2 - Effects on Clover Bay

Only three units north of Monie Lake, 615-025, 616-024 and 616-123, would be harvested under this alternative, so very few changes to the landscape would be visible from Clarence Strait. The visual effects would be well within the VQO standards for the middle and foreground. Clover Bay Lodge clients would be unlikely to see and hear logging activity during a short season of harvest operations.

Information provided by the lodge owners indicates a low risk of losing recreation industry jobs (Social and Economic Report, project file) even if no new marketing is attempted for attracting a different clientele.

Water quality in the streams would remain similar to current conditions. Streams used for domestic water supply would not be affected because no units would be harvested near the lodge.

No wind effects are anticipated.

No roads or LTFs are proposed in Alternative 7. Hence, from the inner portion of the bay, including the resort site, there will be no visual impacts from this alternative. This alternative also drops all the units north of Monie Lake except 615-025, 616-024 and 616-123. These units are most visible from the saltwater areas between Island Point and Clover Bay that are used by Clover Bay clients for fishing. Therefore, from these fishing areas, there will be slight visual impacts.

Issue 3 - Effects on Sunny Cove

Water quality in the Drinking Water Watershed would likely remain at or near natural conditions.

The small unit size and number of reserve trees left in the harvest units and the distance from homes would have no visual effects of timber harvest as seen from homes in Sunny Cove. Residents may hear logging activity in the distance for an estimated short season.

All units in Sunny Cove would be helicopter yarded. Therefore, no roads or LTFs are proposed. We expect no changes in the security of the area.

No effects to the safety of the anchorage are expected (Silviculture and Timber Resource Report, project file).

Hunting access and patterns of subsistence use would remain at current low levels.

Issue 4 - Timber Sale Economics and Supply

An estimated 7.8 MMBF of timber would be produced from the Cholmondeley Project Area. This volume would be divided into five sales with an average volume of 2.6 MMBF. This volume excludes incidental right-of-way volume and translates into approximately 41 timber jobs.

Using the NEAT program, the expected bid value of this timber is -$1,071,181 (-$71/CCF) with 6-inch utility standards and domestic processing. With 10-inch utility standards and red cedar exported, the expected bid value is $107,646 ($8/CCF).

Issue 5 - Roadless Character

Following timber harvest, 36,527 acres of the project area would remain classified as Primitive and 11,152 acres would be classified as Semi-Primitive, Non-Motorized the rest of the project area would be classified in non-primitive ROS classes. Therefore, the majority of the project area maintains a natural, undeveloped character. The actual area within the McKenzie Roadless Area would not be reduced. Changes in the scenic values and opportunities for solitude are described under Issues 1, 2, and 3, above. The wildlife values are discussed in Chapter 3. The large area remaining as roadless is an unbroken parcel of land between Spiral Cove and Kluanil Cove. It includes the rugged terrain and lake basins in the center of the project area and the coastal area on the northern side of Cholmondeley Sound entrance. Temporary disturbance from the logging operations would last between three to four years.

Comparison of Alternatives

This section compares objectives, outputs, and effects of the alternatives for the significant issues and resource concerns of the Cholmondeley Project. This information provides an overview comparison of the alternatives and is summarized from the effects discussions in Chapter 3.

Table 2-1: Comparison of Alternatives

		Alternatives						
CATEGORY	**Units**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Undeveloped Character								
Average size of units	Acres	0	34	35	36	34	35	27
Total harvest	Acres	0	1511	1489	941	1511	1486	355
New log transfer facilities (LTFs)	Each	0	0	1	3	3	2	0
Existing productive old growth remaining	Percent	100	92	92	95	92	92	98
ROS class Primitive (P) in project area	Percent	87	36	36	52	36	36	69
ROS class Semi-Primitive Non-Motorized (SPNM) in project area	Percent	9	33	34	28	33	33	21
Recreation sites with change in ROS (Total =27)	Number	0	16	16	10	16	16	13
High Concern Watersheds With Activities	Number	0	4	3	2	4	4	2
Watersheds with activities (out of 53 in the project area)	Number	0	24	19	16	24	24	16
Visual Quality Objective response on: *								
West Arm, Cholmondeley Sound	Meets VQO	exc.	meet	meet	exc.	meet	meet	meet
Sunny Cove	Meets VQO	exc.	exc.	meet	exc.	meet	meet	exc.
Doctor Point	Meets VQO	exc.	meet	meet	meet	meet	meet	meet
Clover Bay	Meets VQO	exc.	exc.	exc.	meet	meet	exc.	exc.
Trollers Cove	Meets VQO	exc.	exc.	exc.	exc.	exc.	exc.	exc.
Saltery Cove	Meets VQO	exc.	exc.	exc.	exc.	exc.	exc.	exc.
Domestic Water Supply								
Percent of Domestic Watershed Harvested	Percent							
Saltery – CU5A (domestic water)		0	16	16	16	16	14	3
Clover		0	14	0	14	14	14	0
Sunny		0	9	9	9	9	8	0
Open roads in domestic watershed after salvage	Miles	0	0	0	0	0	0	0
Stream Crossings in Private Domestic Watersheds								
Saltery	Each	0	0	0	2	2	0	0
Clover	Each	0	0	0	0	0	0	0
Sunny	Each	0	0	4	4	4	4	0
Buffer Width on Domestic Watershed Streams								
Saltery	Feet	n/a	250	500	250	250	500	250
Clover	Feet	n/a	100	n/a	100	100	100	100
Sunny (Drinking Water Creek)	Feet	n/a	100	100	100	100	100	100
Greatest Tree Retention in Harvest Units, 1=Highest								
Saltery	Ranking	1	3	2	4	4	2	1
Clover	Ranking	1	3	2	4	4	2	1
Sunny	Ranking	1	2	3	3	3	3	1
Wind								
Non-clearcut harvest opportunities	Acres	0	412	333	231	412	333	231
Unharvested productive old-growth acres remaining	M Acres	18.0	16.6	16.6	17.2	16.6	16.6	17.7
Proposed units with high risk to windthrow	Percent	0	41	26	48	41	42	23
Safety								
Classified road construction	Miles	0	0	4.6	14.9	22.3	16.4	0
Dist. to Closest Open Road During Harvest Operation								
Saltery Cove	Miles	n/a	n/a	n/a	.4	.4	n/a	n/a
Clover Bay	Miles	n/a	n/a	n/a	.4	.4	1.7	n/a
Sunny Cove	Miles	n/a	n/a	.3	.3	.3	.3	n/a
Roads open to ATV after salvage	Miles	0	0	0	0	0	0	0

*exc. =exceeds – meets a standard higher than Forest Plan.

Table 2-1: Comparison of Alternatives (continued)

		Alternatives						
CATEGORY	**Units**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Subsistence								
Significant restrictions to access	Response	none	none	none	none	none	none	none
Deer habitat capability affected	Ranking	none	most	mod.	least	most	mod.	least
Significant Possibility of a Significant Restriction								
Deer	Response	no	no	no	no	no	no	no
Bear, Furbearers	Response	no	no	no	no	no	no	no
Salmon, Other Finfish	Response	no	no	no	no	no	no	no
Waterfowl	Response	no	no	no	no	no	no	no
Marine Mammals	Response	no	no	no	no	no	no	no
Connection to other island roads	Response	none	none	none	none	none	none	none
Open roads after salvage	Miles	0	0	0	0	0	0	0
Indirect and cumulative effects to implement Forest Plan over rotation	Response	none	none	none	none	none	none	none
Economics (Timber) (does not include ROW)								
Estimated Net stumpage (low-market rates)	$ / MBF	0	-370	-290	50	20	-160	0
Estimated Net stumpage (high-market rates)	$ / MBF	0	-190	-110	230	200	20	110
Estimated Present Net Value	$ MM	0	-9.0	-6.1	4.3	5.2	-1.6	0.3
NEAT Analysis								
Est. Stumpage Rate	$/CCF	-	-113	-91	-45	-46	-76	-71
Est. Stumpage w/cedar export & higher util. Stand.	$/CCF	-	-34	-13	26	27	-3	8
Est. Bid Value	$MM	-	-7.3	-6.1	-2.0	-3.4	-5.4	-1.1
Est. Bid Value w/cedar export & higher util. Stand.	$MM	-	-1.8	-0.8	1.0	1.7	-0.2	0.1
Total jobs in logging	# of jobs	0	188	179	125	188	179	41
Total income generated in logging industry	$MM	0	8.82	8.49	5.93	8.92	8.44	1.95
Non-Interchangeable Component II								
Saltery	Percent	72	62	62	62	62	59	97
Clover	Percent	54	28	27	15	28	28	30
Sunny	Percent	67	60	60	69	60	59	46
Timber offerings (sales) anticipated	Each	0	5	5	3	5	5	5
Potential Impact to recreational work force (1=most)	Ranking	7	6	4	2	1	3	5
High cost yarding techniques (skyline & helicopter)	Acres	0	1511	1415	396	859	1074	355
Average cost yarding techniques (cable and shovel)	Acres	0	0	74	545	652	412	0
Volume per mile of new road	MMBF	0	0	7.7	1.6	1.6	2.1	0
Volume offered (no ROW included)	MMBF	0	35.6	34.0	23.7	35.6	33.9	7.8
Roadless								
Inventoried Roadless Area (519) Remaining	M Acres	80.6	80.6	79.3	76.8	75.0	76.2	80.6
Effects on solitude/pristine values (1=most)	Ranking	7	4	5	2	1	3	6
New log transfer facilities (LTFs)	Each	0	0	1	3	3	2	0
Changes to Natural ROS settings at Key access pts**								
Swan Lake		r/ spnm	r/rm	r/rm	r/rm	r/rm	rm	r/ spnm
Saltery Cove		r/ spnm	r/rm	r/rm	r/rm	r/rm	r/rm	r/ spnm
Spiral Cove		p	p	p	p	p	p	p
Trollers Cove		p	rm/ spnm	rm/ spnm	p	rm/ spnm	rm/ spnm	rm/ spnm
Monie Lake		p	rm	rm	rm/ spnm	rm	rm	p
Clover Bay		p	rm/ spnm	rm/ spnm	rm/ spnm	rm/ spnm	rm/ spnm	p
Sunny Cove		r/ spnm	r/rm	r/rm	r/rm/ spnm	r/rm	r/rm	r/ spnm

**p=primitive; spnm=semi-primitive, non-motorized; rm=roaded modified; r=rural;

Mitigation

The analysis documented in this EIS discloses possible adverse impacts that may occur from implementing actions proposed under each alternative. Measures have been formulated to mitigate or reduce these impacts. These measures were guided by the direction from the Forest Plan previously described in this chapter and in Chapter 1.

ID team specialists use on-the-ground inventories, computer (GIS) data, and aerial photographs to prepare the unit cards for each harvest unit in the unit pool for the project. Cards are also prepared for each segment of road. Resource specialists include their concerns on the cards and then describe how the concerns can be mitigated (if not completely avoided) in the design of each unit and road segment. These cards may be found in Appendices 2 and 3 of the Record of Decision.

Applicable Forest Plan standards and guidelines, Best Management Practices (BMPs) used to meet the requirements of the Clean Water Act, and project-specific mitigation measures are identified on the harvest unit and road cards. Appendix D includes a complete list of the project-specific measures, and a table linking each measure to the applicable harvest units and road segments.

Monitoring

Monitoring activities are divided into three broad categories: Forest Plan monitoring, routine implementation monitoring, and project-specific monitoring. The National Forest Management Act requires national forests to monitor and evaluate their forest plans (36 CFR 219.11). Chapter 6 of the Forest Plan includes monitoring and evaluation activities to be conducted as part of Forest Plan implementation. There are three levels of Forest Plan monitoring.

> **Implementation monitoring** is used to determine whether the goals, objectives, standards and guidelines, and management prescriptions are implemented as detailed in the Forest Plan.
>
> **Effectiveness monitoring** is used to determine whether the standards and guidelines and management prescriptions, as designed and implemented, effectively meet the Forest Plan goals and objectives.
>
> **Validation monitoring** is used to determine whether the data, assumptions. and estimated effects used to develop the Forest Plan are correct.

These levels of monitoring provide information about the effectiveness of mitigation measures or management practices. An interagency team composed of administrative and resource specialists, field reviews a subsample of timber harvest units across the Tongass National Forest. Units from the Cholmondeley Project would be included in this review. The team assesses which standards and guidelines were executed and how well. Their results are summarized in Tongass National Forest Annual Monitoring and Evaluation Reports. This report references all monitoring conducted on the Forest and assesses progress toward achieving the goals and objectives of the Forest Plan. The team certifies whether the Forest Plan is sufficient to guide management of the Tongass National Forest over the next year. They propose any changes needed to achieve the goals and objectives and an approach for making those changes.

Forest Plan Effectiveness Monitoring

The Tongass National Forest monitors populations and habitat for resident fish management indicator species on several sites across the Forest. One site is located on Drinking Water Creek in the Cholmondeley Project Area. Dolly Varden and cutthroat trout populations have been estimated and their habitat surveyed annually since 1999. Annual monitoring will continue on these stream reaches during timber harvest operations, and any changes in populations will be noted.

The Forest Service installed channel condition assessment sites in Monie and Saltery Creeks in 1996 and 1997, respectively. Detailed data from stream cross-sections and longitudinal profiles are collected during channel condition assessments to monitor changes of the channel. The monitoring site in Monie Creek is located in the western tributary upstream of Monie Lake. The site in Saltery Creek is approximately one-quarter mile upstream of Swan Lake. Each of these sites will be monitored at least once prior to the start of logging activities above the sites. These sites will also be monitored periodically for one to two years following logging to identify changes in channel sediment regimes and changes in fish habitat.

Routine Implementation Monitoring

Routine implementation monitoring assesses whether the project was completed as designed and whether it complies with the Forest Plan. Planning for routine implementation monitoring begins with the preliminary design of harvest units and roads. Mitigation methods and prescriptions listed on the unit and road cards (Appendices 2 and 3 of the ROD) are the basis for determining if recommendations were executed during the Cholmondeley Project.

Routine implementation monitoring is part of the administrative record of a timber sale. Unit and road card directions from this planning process are carried through project layout and translated into the timber sale contract. Timber sale administrators and engineering inspectors monitor and enforce contract compliance. Resource specialists, such as fisheries biologists, soil scientists, and hydrologists are regularly requested to provide technical advice during this process. Due to the importance of the domestic water supplies, special care would be taken to monitor turbidity during road construction and log haul.

Project-Specific Monitoring

Project-specific monitoring assesses how well the project design and mitigation measures protect natural resources and their beneficial uses. Project-specific monitoring related to the significant issues follows.

Private Water Supply Watersheds

Objectives/actions:

1. Determine whether Alaska Water Quality Standards for turbidity are achieved,

2. Apply corrective actions as necessary, and

3. Works in conjunction with the Erosion Control Plan.

Method: Follow compliance monitoring plan outlined below.

Background: The Cholmondeley Timber Sale EIS proposes to construct, maintain, and store roads within watersheds with established domestic water use. Moving the water

system intake upstream of the road will mitigate potential road impacts to only the public water supply system subject to Alaska Drinking Water Regulations (18 AAC 80). All other water supplies downstream of the road are private, subject to Alaska Water Quality Standards for water supply (18 AAC 70).

Turbidity has been selected as the water quality parameter most likely to be affected by roads in the project area and most likely to be of concern to water users (MacDonald et al 1991). The turbidity criteria for water supply for drinking, culinary, and food processing applicable to the streams in the Cholmondeley project area states that waters:

> "May not exceed 5 nephelometric turbidity units (NTU) above natural conditions when the natural turbidity is 50 NTU or less, and may not have more than 10% increase in turbidity when the natural turbidity is more than 50 NTU, not to exceed a maximum increase of 25 NTU." (18 AAC 70.020 (b)).

An erosion control plan containing an exceptionally high-standard level of mitigation in the vicinity of six stream crossings has been established to ensure BMP implementation will achieve state water quality criteria for drinking water (Cholmondeley Final EIS, Appendix G). Conscientious inspection during road construction, road maintenance, and road storage activities, together with turbidity monitoring, will ensure that corrective actions are applied if necessary.

Data Collection Procedures: Field personnel (Forest Service personnel, road contractor, or independent contractor) would receive training on turbidity sampling methods.

Turbidity samples will be collected immediately upstream and downstream of road crossings immediately before, once during, and once within 24 hours after stream crossing structures installation or removal begins at each of the following sites (based on FEIS Road Card information):

Site	Location	Road Number	Milepost
A	Sunny Cove	2170000-1	0.75
B	Sunny Cove	2170000-1	0.90
C	Sunny Cove	2170000-1	1.20
D	Sunny Cove	2170000-2	0.75
E	Saltery Cove	2190000-1	1.10
F	Saltery Cove	2190000-1	1.55

During a storm event, when USFS personnel are on site and precipitation exceeds 1.0 inch in a 24-hour period (rain gauge installed in project area), samples will be collected immediately upstream and downstream of road crossings. If downstream samples exceed water quality criteria, as stated above, corrective actions will be immediately implemented. This may include halting operations. The Alaska Department of Environmental Conservation (ADEC) in Juneau will be notified by the District Ranger. Additional samples will be collected further downstream, near water system intakes, to evaluate water quality criteria near point of use prior to notification of ADEC.

Data collection forms may be developed. Standard information on time, sampler, location, antecedent precipitation, activities occurring upstream, results, and corrective actions should be recorded for each sample.

Data Analysis and Evaluation: Data will be analyzed on-site using Hach portable turbidimeters. The water quality criteria cited above will be the basis of evaluating compliance. The project will be in compliance if water quality criteria for turbidity are achieved. Corrective actions will be immediately applied if water quality criteria are not achieved.

Reporting: Data and reports, including corrective actions, will be submitted to the hydrologist for compilation and summary reporting on an annual basis.

Wind Pattern Changes In Reserve Tree Units

Objective/action: Determine whether reserve trees stand over time and verify assumptions about wind patterns and speed.

Method: Monitor units adjacent to Drinking Water Watershed for buffer effectiveness. Determine if salvage should occur before planned road closure.

Commercial Lodge Use

Objective/action: Monitor visitor use levels with the lodges to measure any shifts in clientele.

Method: Work with lodge owners/managers for annual use reviews after project is implemented.

Heritage Resources

Objective/action: Conduct archaeological monitoring on a sample of areas of disturbance in high sensitivity zones (LTFs and roads leading to them). Conduct monitoring of a sample of roads and units in low sensitivity zones to evaluate the effectiveness of the Forest Service sampling strategy and sensitivity model.

Method: For high sensitivity zones - monitor a sample of all direct impact areas during and/or after the actual ground disturbance. Impact areas to be monitored will be determined on a case-by-case basis. For low sensitivity zones - monitor a sample of all areas of actual ground disturbance. The locations and acreage sampled will be determined on a case-by-case basis.

Recreation

Objective/action: Determine changes in the type and amount of recreation use occurring near the Saltery and Sunny Cove residences and Sportsman Cove Lodge and if it is associated with the road systems.

Method: Cooperate with residents and the lodge owners to periodically observe and record use of the road systems by these various user groups. Collect data on the impact this use has on the area setting.

Scenery Resources

Objective/action: Determine how well harvest methods other than clearcuts meet the desired visual objectives.

Method: Observe and document the visual effects of harvest methods other than clearcuts from the same viewpoints as described in the EIS. Compare the predicted

and actual visual quality of the harvest treatments and how well they meet the visual quality objectives.

Findings and Disclosures

Several laws and executive orders listed in Chapter 1 require project-specific findings or other disclosures. These are included here. They apply to all alternatives considered in detail in this EIS.

National Forest Management Act

The Cholmondeley Project implements Forest Plan goals and objectives (Forest Plan, pages 2-3 through 2-5). All project alternatives comply with the Tongass Forest Plan and the FSM 2410 R10 Supp 2400-2002-1 (5/7/02). They incorporate all applicable forest-wide standards and guidelines and LUD management prescriptions. All required interagency review and coordination has been accomplished; new or revised measures resulting from this review have been incorporated.

The Forest Plan complies with all resource integration and management requirements of 36 CFR 219 (219.14-219.27). Application of Forest Plan direction for the Cholmondeley Project ensures compliance with NFMA at the project level. Specific NFMA findings pertaining to silvicultural systems are included in Chapter 3 and the project planning record.

Endangered Species Act

None of the alternatives would have a direct, indirect, or cumulative effect on any threatened or endangered species in the project area. The Forest Service consulted with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service. These agencies concurred that the proposed project is not likely to affect any threatened or endangered species. A complete biological assessment is included in the planning record.

Bald Eagle Protection Act

To comply with the Bald Eagle Protection Act, management activities are restricted within 330 feet of an eagle nest site by a Memorandum of Understanding (MOU) between the Forest Service and the U.S. Fish and Wildlife Service. None of the action alternatives is anticipated to have a significant direct, indirect, or cumulative effect on any bald eagle habitat. If any nests are found that may be affected, the MOU and Forest Plan Standards and Guidelines will be followed.

Tongass Timber Reform Act

Application of Forest Plan Riparian standards and guidelines ensures that no commercial timber harvest would occur within 100 feet of any Class I stream or any Class II stream flowing directly into a Class I stream.

Magnuson-Stevens Fishery Conservation and Management Act

According to the agreement between the National Marine Fisheries Service and the USDA Forest Service dated August 25, 2000, an assessment will be done that will include:

1. A description of the proposed action,

2. An analysis of individual and cumulative effects of the proposed action on the essential fish habitat, the managed species, and associated species such as major prey species, including affected life histories,
3. The Forest Service's views regarding effects on essential fish habitat, and
4. A discussion of proposed mitigation, if applicable.

The Draft EIS covered these points and was sent to the National Marine Fisheries Service for review. No response was received, indicating concurrence with our determination that the proposed activities may adversely affect EFH within the Cholmondeley Project Area but that state-of-the art mitigation measures will avoid or minimize the possible effects of this timber sale on Essential Fish Habitat to currently acceptable levels. Impacts to EFH are unlikely to occur if the mitigation measures are implemented properly and likely to occur only from unforeseen events. A copy of the FEIS will be given to NMFS as stated in the agreement, and the Forest Service will continue to remain open to consultation with the National Marine Fisheries Service on further mitigation.

National Historic Preservation Act

The Forest Service Prince of Wales zone archaeologist conducted an analysis of potential effects on heritage resources, which included a review of previous archaeological investigations in the project area and descriptions of previously recorded sites. High sensitivity areas were selected for field surveys conducted in 1997. All identified historic properties have been avoided (Forest Plan, page 4-15). It has been determined that no heritage resources eligible for the National Register of Historic Places will be affected under any of the alternatives. The State Historic Preservation Officer has concurred with this determination. The National Historic Preservation Act (NHPA) was amended in 1992 and implementing regulations were issued in January 2001. NHPA requires federal agencies to consult with "Indian Tribes (defined in the amendments as federally recognized Indian Tribes and Alaska Native Claims Settlement Act (ANCSA) Regional and Village Corporations). Consultation with Indian Tribes covers a wide range of topics from field inventory strategies, to National Register of Historic Places eligibility of identified properties, to determinations of potential effects.

Federal Cave Resource Protection Act

No known significant caves in the project area would be directly or indirectly affected by project activities. Forest Plan karst and cave standards and guidelines are applied to areas known or suspected to contain karst resources.

Alaska National Interest Lands Conservation Act (ANILCA)

An ANILCA Section 810 subsistence evaluation was conducted. Preliminary findings indicate that the direct effects, potentially foreseeable, and cumulative effects from the alternatives in this project do not present a significant possibility of a significant restriction of subsistence uses of deer, black bear, marten, wolf, otter, marine mammals, waterfowl, salmon, other finfish, shellfish, and other foods. A subsistence hearing was held in Kasaan on January 15, 2000 (Subsistence Resource Report, project file).

Clean Water Act

Congress intended the Clean Water Act of 1972 (Public Law 92-500) as amended in 1977 (Public Law 95-217) and 1987 (Public Law 100-4) to protect and improve the quality of water resources and maintain their beneficial uses. Section 313 of the Clean Water Act and Executive Order 12580 of January 23, 1987 address Federal agency compliance and consistency with water pollution control mandates. Agencies must be consistent with requirements that apply to "any governmental entity" or private person. Compliance is to be in line with "all Federal, State, interstate, and local requirements, administrative authority, and process and sanctions respecting the control and abatement of water pollution."

The Clean Water Act (Sections 208 and 319) recognized the need for control strategies for nonpoint source pollution. The National Nonpoint Source Policy (December 12, 1984), the Forest Service Nonpoint Strategy (January 29, 1985), and the USDA Nonpoint Source Water Quality Policy (December 5, 1986) provide a protection and improvement emphasis for soil and water resources and water-related beneficial uses. Soil and water conservation practices (BMPs) were recognized as the primary control mechanisms for nonpoint source pollution on National Forest System lands. The Environmental Protection Agency supports this perspective in their guidance, "Nonpoint Source Controls and Water Quality Standards" (August 19, 1987).

The Forest Service must apply Best Management Practices that are consistent with the Alaska Forest Resources and Practices Regulations to achieve Alaska Water Quality Standards. The site-specific application of BMPs, with a monitoring and feedback mechanism, is the approved strategy for controlling nonpoint source pollution as defined by Alaska's Nonpoint Source Pollution Control Strategy (October 2000). In 1997, the State approved the BMPs in the Forest Service's Soil and Water Conservation Handbook (FSH Handbook 2509.22, October 1996) as consistent with the Alaska Forest Resources and Practices Regulations. This Handbook is incorporated into the Tongass Land Management Plan.

Section 404 of the Clean Water Act allows a silvicultural exemption from permitting requirements associated with discharge of dredge or fills material in waters of the United States, including wetlands. Silvicultural operations including timber harvest and roads generally qualify for this exemption if they are constructed and maintained in accordance with best management practices specified in 33 CFR 323.4(a). These specific BMPs have been incorporated into the Forest Service's Soil and Water Conservation Handbook under BMP 12.5.

Clean Air Act

Emissions anticipated from the implementation of any project alternative would be of short duration and are not expected to exceed State of Alaska ambient air quality standards (18 AAC 50).

Coastal Zone Management Act

As required the Coastal Zone Management Act of 1972 (CZMA), the Forest Service has determined that the Cholmondeley Timber Sale is consistent, to the maximum extent practicable, with the enforceable policies of the Alaska Coastal Management Program (ACMP). The State has objected to that determination, because it believes that certain features of the project are not fully consistent with specific provisions of

the Alaska Forest Resources and Practices Act (AFRPA). One of those features is the construction of Road 2190000 in Saltery Cove. The decision on the Saltery Cove portion of the project is being deferred pending further clarification from the State; no action will be taken on that portion of the project at this time.

Another issues raised by the State relates to modifications of old growth reserves in the project area, which the State asserts is not fully consistent with AS 41.17.060(c)(7), which states "allowance shall be made for important fish and wildlife habitat." The fact that the Forest Plan incorporates an old-growth habitat conservation strategy, comprised of small, medium, and large reserves distributed across the Tongass National Forest, is an allowance made for important fish and wildlife habitat. Other land allocations and numerous standards and guidelines included in the Forest Plan, as well as site-specific mitigation measures developed during project-level NEPA analysis also make allowance for important fish and wildlife habitat. Accordingly, we believe the Cholmondeley Timber Sale is fully consistent with AS 41.17.060(c)(7).

The State also asserts that establishing a LTF and associated temporary logging camp at Clover Bay would be inconsistent with AS 41.17.060(c)(3). This provision states "to the extent its capacity permits, forest land shall be administered so as to provide for the continuation of businesses, activities, and lifestyles that are dependent upon or derived from forest resources."

The rationale for the above statement is that "It is likely that the proposed LTF and associated logging camp at Clover Bay would have substantial negative effects on the Clover Bay Lodge's business and the experience of its clients." The State has provided no evidence to support this assertion. On the contrary, the Forest Service conducted a survey of nine lodge owners in Southeast Alaska, which found that past timber harvest activity visible from the lodges has not negatively affected the financial viability of the lodges. Furthermore, to reduce any potential impacts, the Forest Service has incorporated a mitigation measure that would prohibit road construction near the Lodge between July 1 and August 31, if no timing windows turn out to be necessary as a result of the engineering and fish surveys done during the sale layout phase of the project. The boundaries of some timber harvest units have also been adjusted to minimize the visual impacts visible from the vicinity of the Lodge.

While we are not suggesting that the owners of Clover Bay Lodge consider relocating, the fact remains that this facility is a floating lodge that is towed seasonally to its operating location. It could be relocated to another cove, probably one where timber harvest is not allowed on the associated uplands, if operation of the LTF at Clover Bay were to affect the business of the Lodge. In addition, among the multiple use considerations related to this or any other timber sale is the need to supply timber to operators dependent on Federal supplies to remain in business. For all these reasons, the Forest Service believes the Cholmondeley Timber Sale is fully consistent with AS 41.17.060(c)(3).

Finally, the State asserts that establishing a LTF and associated temporary logging camp at Clover Bay would be inconsistent with AS 41.17.060(c)(6), which states "allowance shall be made for scenic quality in or adjacent to areas of substantial importance to the tourism and recreation industry." There are numerous forest-wide standard and guidelines related to protecting visual resources and scenic quality. The 1,000-foot beach buffer protects scenic qualities adjacent to Clover Bay Lodge. In addition, the LTF will be constructed as a low-angle sliding ramp, a design with the

least impact on scenic quality. The proposed project will also change the allocation of land immediately adjacent to the Lodge from development to non-development allocations, in order to protect the scenic qualities adjacent to the Lodge. For these reasons, we believe the Cholmondeley Timber Sale is fully consistent with AS 41.17.060(c)(6).

In summary, the Forest Service believes the State's objections are based on interpretations of provisions of the AFRPA that go beyond the language of that statute. Accordingly, under the Federal CZMA regulations, the Forest Service has the authority to proceed with the project if it believes the project is fully consistent with the ACMP, despite the State's objections. The Forest Service will notify the State in writing of its intention to proceed before implementation of the project.

Effects on Prime Farm Land, Range Land, and Forest Land

No prime farmland or rangeland will be adversely impacted by the action alternatives. Forest land will maintain its long-term productivity with the exception of those acres affected by road construction in Alternatives 3, 4, 5, 6, and 7, as follows:

- Alternative 3 – 29 acres
- Alternative 4 – 103 acres
- Alternative 5 – 150 acres
- Alternative 6 – 118 acres

Executive Order 11593 – Historic and Cultural Environment

Executive Order 11593 directs federal agencies to provide leadership in preserving, restoring, and maintaining the historic and cultural environment of the nation. The analysis completed for the Cholmondeley EIS, in accordance with Section 106 of the National Historic Preservation Act, meets the intent of this Executive Order.

Executive Order 11988 - Floodplains

The numerous streams in the project area make it essentially impossible to avoid all floodplains during timber harvest and road construction. Forest Plan standards and guidelines for riparian areas exclude most commercial timber harvesting from floodplains. Roads may be constructed across floodplains subject to design requirements of BMPs (FSH 2509.22). Effects on floodplains from project activities have been avoided or minimized as much as possible.

Executive Order 11990 - Wetlands

Avoiding all wetland areas in the project area is not feasible because wetlands are so extensive. Wetland soils not meeting Forest Plan criteria for timber harvest suitability are excluded from the harvest base. Soil moisture regimes and vegetation on some wetlands may be altered in some harvest units. The affected wetlands would still function as wetlands in the ecosystem and meet the wetland classification. Road construction through wetlands is avoided where possible. Effects to wetlands are minimized through the application of specific BMPs.

Executive Order 12898 - Environmental Justice

Implementation of any project alternative is not anticipated to cause disproportionate adverse human health or environmental effects to minority or low-income populations.

Executive Order 12962 - Aquatic Systems and Recreational Fisheries

No significant adverse effects to freshwater or marine resources would occur with the application of Forest Plan standards and guidelines. Post-project road closures would limit road use to non-motorized access, except on the road south of Monie Lake under Alternatives 4 and 5. However, most recreational fishing throughout the Tongass occurs by boat in saltwater, and any adverse effects would be minimal.

Executive Order 13007 – American Indian Sacred Sites

Executive Order 13007 directs federal agencies to accommodate access to, and ceremonial use of, American Indian sacred sites by Indian religious practitioners and to avoid adversely affecting the physical integrity of such sacred sites. There are no known sacred Indian sites in the Cholmondeley Project Area. Consultation with local federally recognized tribes including the Organized Village of Kasaan, Klawock Cooperative Association, Craig Community Association, Metlakatla Indian Community, Ketchikan Indian Corporation, Cape Fox Corporation, Klawock Heenya Corporation, Shaan Seet, Inc., Hydaburg Cooperative Association, Kavilco, Inc., Sealaska, Inc., and The Central Council for Tlingit and Haida Tribes of Alaska occurred during the analysis of this project.

Other Findings

The effects of the alternatives on consumers are reflected in the discussions of the issues and resources affected by the proposed alternatives. We have determined that the actions proposed in the alternatives would not adversely affect prime farm land, range land, rivers eligible for Wild and Scenic River designation, Class II airshed standards associated with the Clean Air Act, or Wilderness, nor would the actions adversely impact civil rights, lower income groups, women, or minorities. None of the alternatives would have an adverse effect on environmental justice.

Additional Applicable Policy and Legislation

The Roadless Area Conservation Rule and the Transportation Policy

The Roadless Area Conservation Rule of January 12, 2001 is the subject of a number of lawsuits. While the Roadless Area Conservation Rule was being developed, the Forest Service was also developing a revised National Forest Transportation Policy that, among other requirements, addressed road-related activities within National Forest System unroaded lands. In 2001, the Secretary of Agriculture began a review of the roadless area rule and the Chief of the Forest Service undertook a review of the road management policy. These reviews have led the agency to initiate several Interim Directives with the intent that the values associated with inventoried roadless areas are fully considered within the context of forest planning before any project decisions are made that would build roads or harvest timber in roadless areas. This project has been prepared to fully comply with these Interim Directives (id_7710-2001-3 and id_1920-2001-1).

The Cholmondeley Draft Environmental Impact Statement was issued before the deadline in the Roadless Area Conservation Rule, so this project could move forward regardless of the Roadless Area Conservation Rule status.

National Forest System Land and Resource Management Planning Rule

This final rule, an update to 36 CFR Parts 217 and 219 became effective November 9, 2000. Implementation of the Planning Rule has since been delayed. The rule describes the framework for National Forest System land and natural resource planning; reaffirms sustainability as the overall goal for National Forest System planning and management; establishes requirements for the implementation; monitoring evaluation and amendment of land and resource management plans and guides selection and implementation of site-specific actions. Although this rule is intended to guide Forest-level planning, the Selected Alternative is consistent with the rule.


CHOLMONDELEY
FEIS
Unit Pool
(Existing Condition)
Saltwater
Low Volume Strata
Medium Volume Strata
High Volume Strata
Freshwater
State & Private Land
Encumbered National Forest System Land
Second-Growth Managed Stand
Planned New Classified Road Construction
AHMU I & II Streams
Land Outside of Project Boundary
Project Boundary
VCU Boundary
1.5
0.0
1.5 Miles
NOTE: Compiled from various digital geographic data
This map may not meet National Map Accuracy Standards.
Skowl Arm
6140
6180
Salterr Cove
Kluonil Cove
6150
Spiral Cove
Trollers Cove
Island Pt
Clarence Strait
McKenzie Inlet
6160
Clover Lake
Doctor Pt
Clover Bay
6170
Skip Island
675
6740
West Arm
Sunny Cove
Sunny Pt
6760
Cholmondeley Sound
Chasina Pt

Figure 2-1

CHOLMONDELEY FEIS

Alternative 2

Saltwater
Old Growth Reserve
Freshwater
State & Private Land
Encumbered National Forest System Land
Second-Growth Managed Stand
Proposed Unit
Planned New Classified Road Construction
AHMU I & II Streams
Land Outside of Project Boundary
Project Boundary
VCU Boundary
Log Transfer Facility

1.5 0.0 1.5 Miles

NOTE: Compiled from various digital geographic data. This map may not meet National Map Accuracy Standards.

Figure 2-2

CHOLMONDELEY FEIS

Alternative 3

Saltwater
Old Growth Reserve
Freshwater
State & Private Land
Encumbered National Forest System Land
Second-Growth Managed Stand
Proposed Unit
Planned New Classified Road Construction
AHMU I & II Streams
Land Outside of Project Boundary
Project Boundary
VCU Boundary
Log Transfer Facility

1.5 0.0 1.5 Miles

NOTE: Compiled from various digital geographic data. This map may not meet National Map Accuracy Standards.

Figure 2-3


CHOLMONDELEY
FEIS
Alternative 4
Saltwater
Old Growth Reserve
Freshwater
State & Private Land
Encumbered National Forest System Land
Second-Growth Managed Stand
Proposed Unit
Planned New Classified Road Construction
AHMU I & II Streams
Land Outside of Project Boundary
Project Boundary
VCU Boundary
Log Transfer Facility
1.5 0.0 1.5 Miles
NOTE: Compiled from various digital geographic data. This map may not meet National Map Accuracy Standards.
Skowl Arm
Sellers Cove
Kluanil Cove
Spiral Cove
Trollers Cove
Island Pt
Clarence Strait
McKenzie Inlet
Clover Lake
Doctor Pt
Clover Bay
Skip Island
Chasina Pt
West Arm
Sunny Cove
Sunny Pt
Cholmondeley Sound
6140
6180
6150
6160
6170
6750
6740
6760
614-001a
614-001b
614-002
614-034a
614-034b
614-005
616-012
616-013
616-016
616-017
616-008
616-011
616-007
617-009
616-010
675-037
675-033
675-030
675-029
676-472
676-462
676-489
676-484
675-028
676-500
676-592
Figure 2-4


CHOLMONDELEY
FEIS
Alternative 5
Saltwater
Old Growth Reserve
Freshwater
State & Private Land
Encumbered National Forest System Land
Second-Growth Managed Stand
Proposed Unit
Planned New Classified Road Construction
AHMU I & II Streams
Land Outside of Project Boundary
Project Boundary
VCU Boundary
Log Transfer Facility
1.5
0.0
1.5 Miles
NOTE: Compiled from various digital geographic data
This map may not meet National Map Accuracy Standards.
Figure 2-5
Skowl Arm
Sellers Cove
Kluanil Cove
Spiral Cove
Trollers Cove
Island Pt
Clarence Strait
McKenzie Inlet
Clover Lake
Wavy Lake
Doctor Pt
Clover Bay
Skip Island
Chasina Pt
Sunny Cove
Sunny Pt
West Arm
Cholmondeley Sound
6140
6180
6150
6160
6170
6750
6740
6760
614-001a
614-001b
614-002
614-034a
614-034b
614-005
616-024
616-123
615-025
616-023
616-022
616-019
616-021
616-275
616-018
616-012
616-013
616-011
616-007
616-016
616-008
616-017
617-009
616-010
675-037
675-033
676-472
676-462
676-489
676-484
675-030
676-500
675-031
675-029
675-028
674-537
674-548
674-551
674-549
674-583
674-550
675-032
674-032
676-592

CHOLMONDELEY FEIS

Alternative 6

- Saltwater
- Old Growth Reserve
- Freshwater
- State & Private Land
- Encumbered National Forest System Land
- Second-Growth Managed Stand
- Proposed Unit
- Planned New Classified Road Construction
- AHMU I & II Streams
- Land Outside of Project Boundary
- Project Boundary
- VCU Boundary
- Log Transfer Facility

1.5 0.0 1.5 Miles

NOTE: Compiled from various digital geographic data. This map may not meet National Map Accuracy Standards.

Figure 2-6


CHOLMONDELEY
FEIS
Alternative 7
Saltwater
Old Growth Reserve
Freshwater
State & Private Land
Encumbered National Forest System Land
Second-Growth Managed Stand
Proposed Unit
Planned New Classified Road Construction
AHMU I & II Streams
Land Outside of Project Boundary
Project Boundary
VCU Boundary
Log Transfer Facility
1.5
0.0
1.5 Miles
NOTE: Compiled from various digital geographic data
This map may not meet National Map Accuracy Standards.
Skowl Arm
6140
6180
Salmon Cove
Kluonil Cove
6150
614-001a
614-034b
614-005
McKenzie Inlet
Spiral Cove
Strollers Cove
Island Pt
616-024
616-123
615-025
Clarence Strait
6160
Doctor Pt
Clover Bay
6170
Skip Island
6750
6740
674-537
674-583
674-548
674-550
674-551
674-549
674-032
West Arm
Sunny Cove
Sunny Pt
6760
Chos'no Pt
Cholmondeley Sound

Figure 2-7


CHOLMONDELEY
FEIS
Transportation Map
Saltwater
State & Private Land
Encumbered USFS Land
Proposed Unit
Planned New Classified Road Construction
Road 2180000-5 in Alternative 6 only
Land Outside of Project Boundary
Project Boundary
VCU Boundary
Log Transfer Facility
1.5 0.0 1.5 Miles
NOTE: Compiled from various digital geographic data. This map may not meet National Map Accuracy Standards.
Skowl Arm
Sellers Cove
Kluonil Cove
Spiral Cove
Trollers Cove
Island Pt
Clarence Strait
McKenzie Inlet
Doctor Pt
Clover Bay
Skip Island
Chasina Pt
West Arm
Sunny Cove
Sunny Pt
Cholmondeley Sound
6140
6180
6150
6160
6170
6750
6740
6760
2190000-1
2190000-2
2190100
2190000-2
2180000-4
2180000-5
2180700
2180000-3
2180600
2180400
2180000-2
2180320
2180300
2180300
2180310
2180200
2180000-1
2170000-3
2170450
2170000-2
2170000-1

Figure 2-8

Chapter 3
Affected Environment and Environmental Consequences

subsistence analyses use the WAA as the basis for assessing effects on game animals, such as deer, bear, and wolves.

Value Comparison Units (VCUs)

Value Comparison Units are geographic areas that contain a drainage basin of one or more large stream systems. The boundaries usually follow major watershed divides. The project area includes VCUs 614, 615, 616, 617, 618, 674, 675, and 676. For analysis purposes the project area boundaries generally coincide with the VCU boundaries (Chapter 1, Figure 1-2). Silviculture, Old-growth Habitat LUD, and Forest Plan requirements are assessed on a VCU basis.

Analyzing Effects

Environmental consequences are the effects of implementing an alternative on the physical, biological, social and economic environment. The Council on Environmental Quality (CEQ) regulations that implement the National Environmental Policy Act (NEPA) include specific categories for the analysis of environmental consequences. Those categories applicable to this analysis are described below.

Direct, Indirect, and Cumulative Effects

Direct environmental effects are those occurring at the same time and place as the initial cause or action. Indirect effects are those that occur later in time or that are spatially removed from the activity, but would be significant in the foreseeable future. Cumulative effects result from incremental effects of actions, when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. Cumulative effects can result from individually minor, but collectively significant, actions taking place over a period of time.

Past and Present Actions

The Cholmondeley Project Area is unique in that only scattered minor harvest activities have occurred in the past, one major activity is planned as this entry, and no other major harvest activity is planned in the reasonably foreseeable future. In essence, for many resources, the direct effects of this one-time entry will equal the cumulative effects. A more in-depth discussion can be found in the silviculture, wildlife, subsistence, recreation, transportation, old growth, and fisheries sections. It is also summarized in the response to comments appendix.

We do not anticipate significant cumulative effects in watershed, soils, wetlands, riparian areas, floodplains, facilities, hands, karst, heritage, minerals, air quality, social, or economics.

While virtually no past harvest has occurred within the project area, extensive harvest has occurred on private land to the northwest, south, and southwest. The closest of these cuts are within ¾ of a mile and across bodies of water from the project area. The effects of these cuts are discussed under the scenery sections and Issues 1-3 in this chapter.

Unavoidable Adverse Effects

Many adverse effects can be reduced, mitigated or avoided by limiting the extent or duration of effects. The ID team designed the harvest units, roads and their placement

to eliminate or lessen the significant adverse effects. The application of Forest Plan Standards and Guidelines, Best Management Practices, project-specific mitigation measures, and monitoring are all intended to further limit the extent, severity, and duration of potential effects. These measures are discussed throughout this chapter. Despite our best efforts to limit adverse effects, some may still occur. The purpose of this chapter is to fully disclose these effects.

Short-term Use and Long-term Productivity

Short-term uses, and their effects, are those that occur annually or within the first few years of project implementation. Long-term productivity refers to the capability of the land and resources to continue producing goods and services long after the project has been implemented. Under the Multiple-Use Sustained-Yield Act, and the National Forest Management Act, all renewable resources are to be managed in such a way that they are available for future generations. The harvest and use of standing timber can be considered a short-term use of a renewable resource. As a renewable resource, trees can be re-established and grown again if the long-term productivity of the land is maintained. This long-term productivity is maintained through the application of the resource protection measures described in Chapter 2, in particular those applying to the soil and water resources.

Irreversible and Irretrievable commitments

Irreversible commitments are decisions affecting non-renewable resources such as soils, wetlands, unroaded areas, and heritage resources. Such commitments are considered irreversible because the resource has deteriorated to the point that renewal can occur only over a long period of time or at great expense, or because the resource has been destroyed or removed. The construction of roads for timber harvesting is an irreversible action because of the time it takes for a constructed road to revert to natural conditions. The conversion of old-growth forest to a managed second growth stand may also be considered an irreversible commitment.

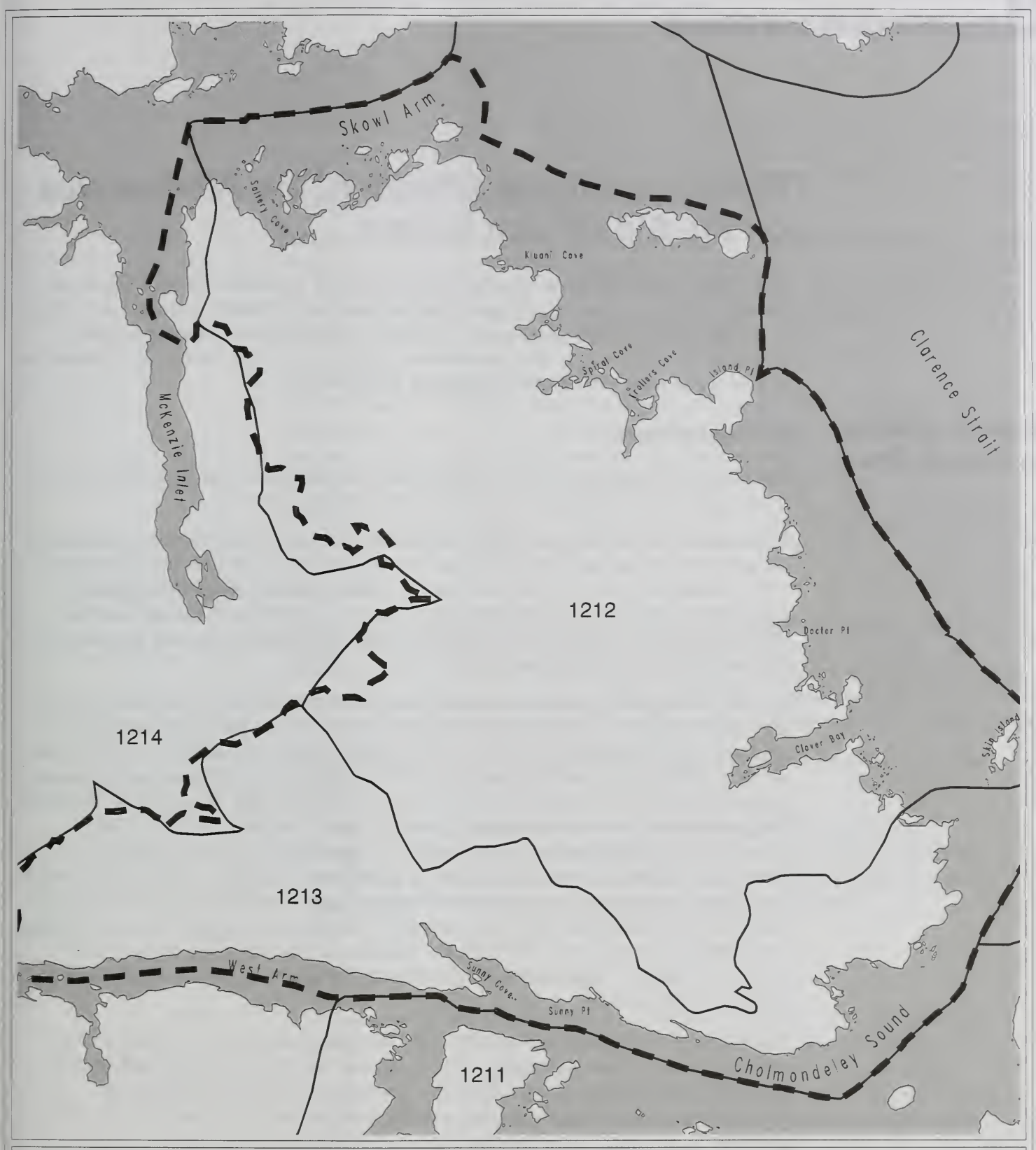
Petroleum fuels and rock are non-renewable resources that are used to build the roads, sort yards, and log transfer facilities on the Cholmondeley Project Area. Alternative 1, the No Action alternative, does not use these resources since no timber harvest occurs. Alternatives 2 and 7 use fuels for layout, logging, and yarding but do not require rock since the roads and sort yards are not needed. Alternatives 3, 4, 5, and 6 require both fuel to support the logging operations and rock to build all three types of facilities (Table 3-42).

Constructing roads in the project area would irreversibly reduce the amount of roadless area and opportunities related to the roadless character. Alternative 1 would not have these consequences. All alternatives have this effect to different degrees as discussed under Issue 5.

Irretrievable commitments represent opportunities foregone for the period during which resource use or production cannot be realized. Such decisions are reversible, but the production opportunities foregone are irretrievable. As an example, deferring timber harvest at this time in certain areas due to resource concerns or economics would be an irretrievable commitment of timber volume otherwise obtainable. The commitment is irretrievable rather than irreversible, because future entries could harvest those areas if they are still part of the suitable timber base.

Under all of the action alternatives, there would be an irretrievable loss of old-growth forest unless rehabilitation occurs over a period as long as 200 to 300 years. Other old-growth areas adjacent to harvest units would have their habitat values for those species that prefer interior habitat reduced due to increased fragmentation.

Irreversible and irretrievable commitments are discussed in this analysis though generally not in those specific terms. Refer to discussions of old growth, roadless areas, undeveloped character, and recreation for more details.



Saltwater

WAA Boundary

Project Boundary

CHOLMONDELEY
FEIS

Wildlife
Analysis Area

2 0.0 2 Miles

Figure 3-1

Environment and Effects of the Alternatives on the Significant Issues

The effects of timber harvest on the significant issues, as detailed in the alternatives, are discussed in this section. The affected environment is briefly described as it relates to the particular resource discussion. Conditions under the No Action alternative generally would remain in their current state, subject to natural forces. This alternative is used to compare the effects of the action alternatives.

Issue 1: Effects on Saltery Cove

Domestic Water

Residents and Sportsman's Cove Lodge owners are concerned that timber harvest and road construction would adversely affect their drinking water.

Most undisturbed sites in the project area are resistant to surface erosion because they are protected by surface layers of organic matter and roots of vegetation. However, when mineral soils are exposed, erosion can occur. The rate of erosion depends primarily on the amount of disturbed ground cover, erodability of the soil, and the steepness of slope. Timber harvest activities and road construction may increase the erosion rate by exposing mineral soil.

Several residents have perfected water rights (either a certificate or permitted right to appropriate water) to use water from streams on the Cholmondeley Project Area. Alaska Statute (AS) 46.15.040 states "The commissioner's issuance of a permit under AS 46.15.040 or of a certificate under AS 46.15.065 or 46.15.120 does not represent a guarantee by the state to the permittee or certificate holder that water will be available for appropriation at a certain volume, quantity, artesian pressure, or cost. This subsection does not however, alter the right of a permittee or certificate holder may have against a later appropriator, including a government agency." While the State of Alaska has issued permits to appropriate (or use) water from streams on the project area the State has not guaranteed the quantity or quality of the water. The water rights certificates do establish the first right to a quantity of water if a limited quantity of water is available. The environmental effects of the proposed project do not include changes in stream flow

In the Saltery Cove area, local residents and the Sportsman's Cove Lodge use four streams for domestic water supply. The Fairbanks family uses a very small stream behind their float house for water supply. The stream is entirely on private or encumbered lands and is outside the watersheds where harvest or road activities are planned.

Sportsman's Cove Lodge and the Owens family use a small stream located behind the lodge for a primary water source. The lodge has a certificate to take water from this stream. This stream drains a watershed that will not be affected by proposed activities.

The Ron Leighton household and other households use a small stream that drains the west end of proposed harvest Unit 614-001a (Stream 2 on the unit card) for domestic water supplies. Ron Leighton also has a small dam and pelton wheel in this stream for

generating electricity. The Sportsman's Cove Lodge also has a water certificate (after Leighton's) on this stream for a water supply during the summer months when the small stream behind the lodge cannot meet their water needs. This stream sometimes freezes or dries up to the point the pelton wheel cannot be used.

The Bliss and Williams families use a stream draining from the east end of proposed Unit 614-001a (Stream 4 on the unit card) as a primary water source. The Bliss family has a certificate to take water from this stream. Most other families in Saltery Cove also use this stream in the winter when the other three streams either freeze or fail to supply an adequate amount of water.

State Water Quality Standards

Two chapters of the Alaska Administrative Code apply to streams in the Cholmondeley Project Area. Chapter 70 defines the State of Alaska Water Quality Standards. Chapter 80 lists the standards for drinking water and outlines the responsibilities of the owners or operators of public water systems.

The Alaska Forest Resources & Practices Regulations (11 AAC 95) apply to forest practices and are incorporated in the discussion under Chapter 70.

Chapter 70

Chapter 70 provides the numeric standards for water quality parameters based on designated beneficial use. The effects described in the Floodplains, Soils, and Wetlands Resources Report for the Cholmondeley Project Area indicate the primary water quality parameter that could be affected by the project is turbidity. Since all freshwaters in Alaska are designated for all uses, the standard for water supply applies.

Where drinking, culinary, and food processing is the downstream designated use, turbidity

> "may not exceed 5 nephelometric turbidity units (NTU) above natural conditions when the natural turbidity is 50 NTU or less, and may not have more than 10 percent increase in turbidity when the natural turbidity is more than 50 NTU, not to exceed a maximum increase of 25 NTU."

In 18 AAC 70.990 (70) Water Supply

> "means any of the waters of the state that are designated in this chapter to be protected for freshwater or marine uses; water supply includes waters used for drinking, culinary, food processing, agricultural, aquacultural, seafood processing, and individual purposes: water supply does not necessarily mean that water in a water body that is protected as a supply for uses listed in this paragraph is safe to drink in its natural state."

Chapter 70 also includes an Antidegradation Policy (18 AAC 70.015) that states,

> "(1) existing water uses and the level of water quality necessary to protect existing uses must be maintained and protected." and

> "(2) if the quality of the water exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality must be maintained and protected unless the department, in its discretion, upon application, and after compliance with (b) of the section allows the reduction of water quality for a short term variance under 18 AAC 70.200"…

The clause goes on to list the criteria and information necessary to qualify for a variance.

Degradation of water quality is defined in 11 AAC 95.900 (20).

> "Degradation of water quality means a decrease in water quality such that the affected waters are unable to fully maintain existing or designated uses; degradation of water quality does not include changes that are temporary, localized, and reparable decreases in water quality; in this paragraph
>
> (A) "Reparable" means an effect on, or change to, a use or aquatic system due to a decrease in water quality that is reversible by natural process such that the original use or system will return to a state functionally identical to the original.
>
> (B) "Temporary" means 48 hours or less with respect to existing uses."

Chapter 80

Chapter 80 of the Alaska Administrative Code lists the standards for drinking water and outlines the responsibilities of the owners or operators of public water systems. There are two Class B public water systems that use water from the Cholmondeley Project Area: Sportsman's Cove Lodge in Saltery Cove and Clover Bay Lodge in Clover Bay. Class B public water systems are water systems that serve more that 25 people intermittently. Both lodges have significant investments in filtration and treatment systems, and time in monitoring and maintaining the water treatment systems. The filtration and treatment systems are designed to make the source water potable. The quality of the source water is determined through background sampling. Chapter 80 lists the standards for potable water that must result following filtration and treatment requirements. A decrease in source water quality will substantially increase the cost and time to maintain a system that consistently produces potable water.

Chapter 80 contains an Antidegradation Policy (18 AAC 80.015) that states in part, " "A person may not (1) cause pollution or contamination to enter a public water system; or (2) create or maintain a condition that has a significant potential to cause or allow the pollution or contamination of a public water system."

Tongass Land Management Plan Direction Concerning Water Quality

The Tongass Land Management Plan provides direction for protecting domestic water sources in at least three places: the management prescriptions for the Timber Land Use Designation, the management principles for the Municipal Watershed Land Use Designation, and in the Soil and Water Standards and Guidelines. There are no Municipal Land Use Designations on the Cholmondeley Project Area.

The Timber Land Use Designation Management Prescription (page 3-148) states "Manage non-designated domestic use watersheds for multiple use while providing water suitable for human consumption under state Water Quality Standards and water supply regulation."

The Forest Plan Soil and Water Standards and Guidelines S&W112.III.A. (page 4-85) require the Forest Service to:

> Secure "favorable conditions of water flows" (Organic Administration Act of 1897). Maintain water quality consistent with Alaska Water Quality Standards for water supply (18 AAC 70) and Alaska Drinking Water Regulations for source water protection (18 AAC 80.015 (a)). Avoid management activities that are likely to pollute a known public water system or violate Alaska Water Quality Standards. Conduct watershed analysis and consult with the Alaska Department of Environmental Conservation before authorizing management activities that create or maintain a condition that has significant potential to cause the pollution or contamination of a public water system.
>
> 1. For incorporated city watersheds, refer to Municipal Watershed Land Use Designation.
>
> 2. For unincorporated communities and other public water systems, coordinate with owners or operators of public water systems to meet watershed protection needs on a case-by-case basis. Develop written agreements with owners or operators consistent with 18 AAC 80.520(c) (3) and 36 CFR 251.9, if appropriate. Consult with owners or operators before authorizing management activities."

In regards to developing a written agreement, the Forest Plan cites 18 AAC 80.520(c) (3). There is no 80.520(c) (3) in the current Alaska Administrative Code. Furthermore, 80.520 is titled "Applicability of Corrosion Control Treatment Steps to Small, Medium, and Large Water Systems." It is possible that this is a typographical error in the Forest Plan or that the Code has changed since the Forest Plan was written and that the intended citation is 18 AAC 80.620(c)(3). 18 AAC 80.620 is titled "Criteria for Avoiding Filtration," which also does not apply to public water systems on the Cholmondeley Project Area because both systems have filtration. Section 18 AAC 620 (c) does speak to watershed protection; it states

> "To be allowed to avoid filtration, the owner or operator of a Class A or B public water system must (3) demonstrate, through local ordinances, ownership, or written agreements with landowners within the watershed, that the system can control human activities that may have an adverse impact on the microbiological quality of the source water."

The Forest Plan requires the Forest Service to

> "Avoid management activities, which are likely to pollute a known public water system or violate Alaska Water Quality Standards. Conduct watershed analysis and consult with the Alaska Department of Environmental Conservation before authorizing management activities that create or

> maintain a condition that has a significant potential to cause the pollution or contamination of a public water system."

Consultation with DEC has occurred (meetings on June 1, 2000, March 7, 2001, and March 1, 2002), and a watershed analysis and soil resource report describing the environmental effects has been written.

During a consultation with the State of Alaska, we determined that the standard for source water protection in both public and private water systems is (for turbidity) the 5 NTU increase over natural conditions. We also discussed petroleum products and the inability of the approved system to handle any petroleum products (phone conversation with Kathleen Soga, June 2, 2000).

The Forest Plan relies on the implementation, monitoring, and feedback of Best Management Practices to achieve State Water Quality Standards. Forest Service Handbook 2509.22.03 states, in part,

> "The reasonable implementation, and site specific application of State approved BMPs, in conjunction with monitoring and feedback to ensure appropriate corrective action is taken on observed water quality degradation, achieves compliance with the intent of the Clean Water Act and State Water Quality Standards."

The EPA Water Quality Standards Handbook, Chapter 2, states:

> "Proper installation, operation and maintenance of State approved BMPs are presumed to meet a landowner's or manager's obligation for compliance with applicable water quality standards. If subsequent evaluation indicates that approved and properly installed BMPs are not achieving water quality standards, the State should take steps to 1) Revise the BMPs, and (2) evaluate and, if appropriate, revise water quality standards (designated beneficial uses and water quality criteria) or both." (EPA, Water Quality Standards Handbook, 1983; Chapter 2 General Program Guidance, NPS Controls and Water Quality Standards Preamble, 8/19.87)

To comply with State Water Quality Standards, the Forest Service is required to apply BMPs that are "consistent" with State Forest Practices and other applicable State Water Quality Regulations. The site specific application of BMPs, with a monitoring and feedback mechanism is the state's approved method for controlling nonpoint source pollution as defined by the state of Alaska's Nonpoint Source Pollution Control Strategy (October 2000), Forest Resources and Practices Regulations (January, 2000), and the Forest Service's Soil and Water Conservation Handbook (FSH 2509.22) (October 1996) as approved by the state in 1997 and incorporated into the Tongass Land Management Plan.

Site-specific application of BMPs are designed with consideration of geology, land type, hydrology, soil type, erosion hazard, climate, cumulative effects, and other factors in order to fully protect and maintain soil, water, and water-related beneficial uses, and to prevent or reduce nonpoint source pollution (FSH 2509.22.01). The BMPs included in Forest Service Handbook 2509.22 are State approved BMPs and are

consistent with the state's Forest Resources Practices Regulations to the extent practicable and are therefore capable of meeting State Water Quality Standards. Beneficial use of the downstream waters is taken into account when designing the BMPs. Unfortunately, the analysis displayed in the Cholmondeley DEIS and Floodplain, Soil, and Wetlands Resources Report for the Cholmondeley Project (Landwehr, 2000) focused on displaying effects and potential effects and did not include a discussion on how the proposed site-specific application of BMPs would meet or exceed the Forest Service's responsibilities under the Clean Water Act and State Water Quality Standards. Part of the purpose of this addendum is to describe how BMP implementation, monitoring, and adaptive management will meet the intent of the Clean Water Act and State Water Quality Standards in each of the watersheds used for domestic water supply.

General Water Quality Environmental Effects Discussion

The water quality parameter most likely affected by timber harvest and road construction in the domestic water supply watersheds on the Cholmondeley Project Area is turbidity. Based on the topography, soils, vegetation, and proposed road locations in the domestic water supply watersheds and studies done by Kahklen (1993 Master's Thesis) and Kahklen and Hartsog (1999) the primary source of sediment in the domestic supply watersheds will be the road surface. In all domestic water supply watersheds, the road is located mostly on gentle sideslopes and the road will consist primarily of rock overlay. Kahklen and Hartsog (1999) found the primary factors in sediment production from road surfaces to be rainfall, road gradient, traffic, and surface condition. Bedrock in and around the domestic water supply watersheds is generally durable and has hardness appropriate for road construction. In this setting, fine sediment is generated from road surfaces because of traffic during rainy periods. Sediment generation is greatly reduced when rainfall or traffic ceases. Sediment production from road surfaces in all domestic watersheds is anticipated to occur during initial construction when rock haul traffic is high and during harvest when log haul traffic is high. Rainfall during rock or log haul will greatly affect the amount of sediment produced on the road surface.

Turbidity monitoring on the Tongass National Forest (Tongass National Forest Monitoring and Evaluation Report for the Year 2000, Transportation section, draft) indicates that the State Water Quality Standards for water supply (drinking water) were met at 26 of the 28 sites monitored. Most of these sites monitored were culvert replacements or new culvert installations, but one site was a bridge installation and a few sites were downstream of new road construction. The two sites that violated State Water Quality Standards for drinking water were both associated with one road on the Turn Timber Sale on Wrangell Island. The primary cause of the violation was the breakdown of poor quality granite road material by truck traffic, compounded by heavy rainfall (12 inches in 17 days). Other factors contributing to the violation were runoff from the rock quarry on the roadway and ditch and delays in implementing corrective measures, including failure to suspend rock haul during extreme sedimentation/runoff periods.

The turbidity monitoring protocol used by the Forest Service for Forest Plan monitoring was written in consultation with the state of Alaska Department of Environmental Conservation and approved by the Interagency Monitoring and Evaluation Group. Many sites were monitored approximately 48 hours after

installation; however, there were five sites monitored 24 hours or less after installation. All five sites met the 5 NTU above natural standard. Three sites were monitored less than four hours after in stream work. Of these three sites, only one met the 5 NTU or less standard, but all three met the standard within 24 hours. It is important to note that all of these five sites involved in stream work. The stream crossings in domestic water supply watersheds will be log stringer bridges with no in stream work. Based on the Forest Plan turbidity monitoring results, we expect no turbidity increases

Streamflow

Streamflow is an issue in domestic water supply streams because water users are concerned that timber harvest may affect their water supply and, in one stream, water supply for electric power generation.

Timber harvest alters basin hydrology because if affects transpiration, the interception and evaporation of rainfall, snow accumulation, snow melt, and soil structure and resultant water infiltration and subsurface transmission rates (MacDonald, 1991). Generally the greater the percent of the watershed harvested, the greater the effects on streamflow. A study of the response of the Maybeso watershed showed no significant changes in streamflow when 25 percent of the basin was harvested (James 1956, Meehan et al. 1969). A second, more recent study, on a sloping forested wetland site, (McGee 2000 Master's Thesis), found similar results. An analysis of the Staney Creek basin showed increase in mean and summer low flow when harvest reached 20 to 25 percent of the basin area (Bartos 1989, Neal 2000). As this information relates to potential effects on streamflow for residents who are dependant on streamflow for their domestic water supplies, the low and mean flows may be increased. This could be a beneficial impact since the low flow periods may show an increase in streamflow. It should also be noted that changes in streamflow would be less than the annual changes in streamflow due to natural variability of the system. Rainfall data for Craig, Alaska shows that in the last five years rainfall has varied from a low of 78 inches in 1996 to a high of 135 inches in 1999.

Table 3-1 displays the watershed acres, proposed harvest acres, and percent of watershed harvested. See Figures 3-2 and 3-7 for maps of the watersheds. The percent of harvest in all domestic watersheds on the project area is less than 16 percent under all alternatives. Silvicultural prescriptions calling for various percentages of tree retention further reduce the harvest percent. Silvicultural prescriptions for Alternatives 3, 6, and 7 leave 50 percent of the trees standing in several areas of the unit (adjacent to stream buffers), resulting in much less than 20 percent of the watershed area harvested. We do not anticipate a change in streamflow beyond the natural variation in streamflow because of timber harvest. At most, the data suggests that an increase in low flows could result in the stream draining the east of unit 614-001b under Alternatives 2-6.

Table 3-1: Selected Watershed Characteristics for Domestic Water Supply Watersheds.

Watershed Name and Users	Watershed Acres	Proposed Harvest (ac)	Percent of Watershed Harvested	Miles of Road	Distance to Water Intake (miles)
CU5A: Leightons, Bliss, Williams, Sportsman's Cove Lodge secondary, other residences	438	70 (Alts. 2, 3, 4, 5) 61 (Alt 6) 11 (Alt 7)	16 (Alts. 2, 3, 4, 5) 14 (Alt. 6) 3 (Alt 7)	0 Alts. 2, 3, 6, 7) 0.85 (Alts. 4, 5)	0.9
F40A: Clover Bay Lodge	135	20 (Alts. 2, 4, 5, 6) 2 (Alts. 3, 7)	14 (Alts. 2, 4, 5, 6) 1 (Alts. 3, 7)	0 (Alts. 2, 3, 4, 5, 6, 7)	0.45
Drinking Water Creek (F28A): Sunny Cove residences	658	60 (Alts. 2, 3, 4, 5) 50 (Alts. 6, 7)	9 (Alts. 2, 3, 4, 5) 8 (Alts. 6, 7)	0 (Alts. 2,7) 2.0 (Alts. 3, 4, 5, 6)	0.3 (Alts. 3, 4, 5, 6, 7)

Alternative 1 (No Action)

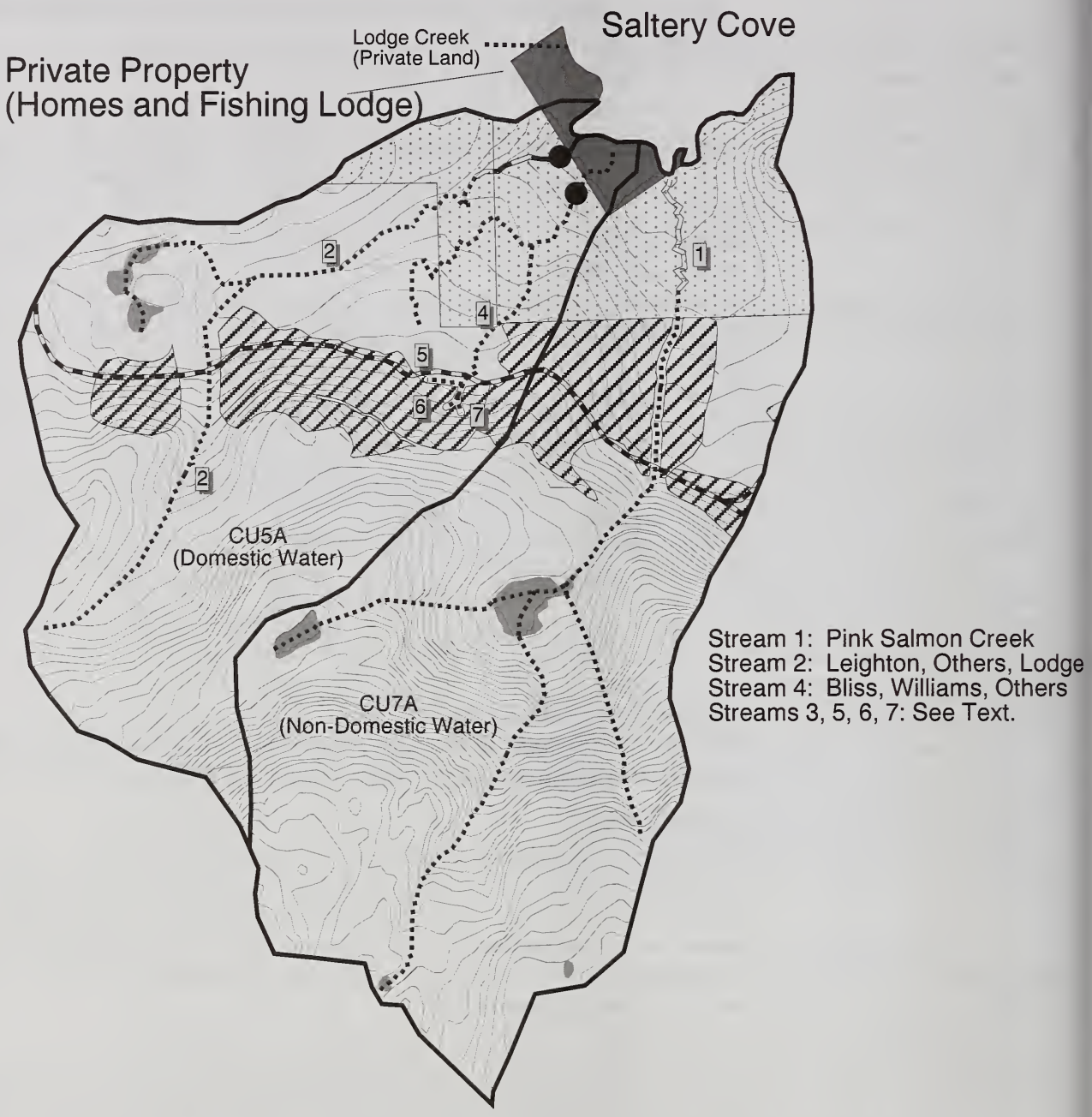
Alternative 1 proposes no harvest treatments or road construction. Natural levels of run-off, sedimentation, and potential windthrow would occur in the watersheds.

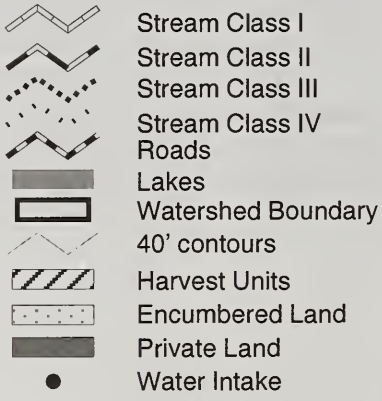
Alternative 2

No road construction is planned under this alternative, and logs would be yarded by helicopters (full-log suspension). Two of the streams used for domestic water flow through Unit 614-001a. Potential effects to water quality would likely be limited to blowdown of stream buffers. The stream buffer in Unit 614-001a is 250 feet wide on the windward side of the stream and 100 feet wide on the lee side, to limit the potential for blowdown (Appendix B).

The ID team prescribed even-aged clearcut with reserves as the primary silvicultural system. The units would be yarded with helicopters, which provides full suspension and causes less ground disturbance or damage to residual trees than cable systems. Thus, more trees with a diameter breast height (DBH) of 9 inches or less would be left standing (retention) in the units and ground disturbance would be negligible (Silviculture Report, project file). Approximately 15 percent of the overstory (DBH greater than 9 inches) would also be left in the units to meet wildlife requirements. The retained trees would be scattered through the unit or clumped in groups depending on windfirmness, logging safety, and the specific conditions of the unit. Seasonal helicopter yarding restrictions would not be imposed and we would expect full yarding operations during the drier periods. The stream buffers and harvest prescriptions would result in turbidity levels similar to natural conditions.

Saltery Cove Domestic Water Supply Streams





Cholmondeley
FEIS

Figure 3-2

Alternative 3

As in Alternative 2, no road construction is proposed and logs would be yarded by helicopter. Two of the streams used for domestic water flow through Unit 614-001a. The western stream used for domestic water would have a 500 foot buffer – a 250 foot no-cut buffer and adjacent 250 foot buffer retaining 50 percent of the original stand density. The eastern stream buffer in Unit 614-001b would extend 25 feet beyond the slope break.

The two-aged silvicultural system of clearcut with reserves is the primary method of regeneration prescribed under this alternative (memo, Tom Puchlerz, April 5, 2000). Tree density would decrease beyond the stream buffers to 25 percent of the original stand density in the harvest unit. This prescription leaves the highest residual stand density throughout the units when compared with the prescriptions in the other alternatives. The windthrow potential under this alternative would be low. Restrictions on helicopter yarding to Saltery Cove would extend operations into wetter periods (see alternative descriptions, Chapter 2). This alternative would have the least ground disturbance because of the number of residual trees left in the unit and full-suspension yarding. Turbidity levels would remain near natural conditions. Roads will be closed after salvage operations.

Alternative 4

Road construction and timber harvest are proposed in both watersheds. The prescribed silvicultural system is the same as in Alternative 2; however the units would be yarded by a combination of helicopter and partial suspension cable systems. Partial suspension typically results in less than 5 percent soil disturbance in a harvest unit. The stream buffers should trap sediment before it reaches the streams. Harvest retention will rank as the least retained and should equal that of Alternatives 5 and 7. Buffer widths for domestic water supply streams are 250 feet of no-cut harvest for this alternative. Moving the water system intake upstream of the road will mitigate potential road impacts to the public water supply system subject to Alaska Drinking Water Regulations (18 AAC 80).

Two stream crossings are proposed in the domestic watershed. The stream crossings would consist of log stringer bridges with no in stream work. Due to the gentle sideslopes in the domestic water supply watersheds, the road would consist of rock overlay. In this setting, the primary source of sediment is the road surface. Sediment would be generated on the road surface during rock and log haul, combined with precipitation (Kahklen & Hartsog 1999). Silt fencing in the wetland adjacent to the road near streams 4, 5, 6, and 7 in the east end of unit 614-001a would be effective in reducing fine sediment input to these streams. In the forested wetland adjacent to stream 2 in the west end of unit 614-001a, the duff layer on the soil surface is anticipated to provide a natural trap for any sediment produced on the road surface. Roads and stream crossings are designed to minimize sediment from stream crossing structures or runoff that will likely enter the streams. Straw bales, sediment traps, filter materials, and design methods will be used to keep sediments within Alaska water quality standards. Turbidity monitoring upstream and downstream of the road crossing on both streams will be used to determine if increases in turbidity are a result of the road. If an increase in turbidity is noted, a special provision in the contract will be used to restrict activities until BMPs can be evaluated and/or precipitation diminishes

to the point where there is reasonable assurance that activities can resume and state water quality standards can be met in the stream. Log and rock haul may need to be limited to dryer periods. The turbidity-monitoring plan is described in Chapter 2. Moving the public water supply intake upstream of the road is a possible mitigation measure that could be used to prevent impacts to water quality.

The Forest Service has designed mitigation measures (Appendix C) to reduce the potential of petroleum product pollution in all streams, including those in domestic watersheds. Forest Service contract specifications require the road and logging contractor to ensure that any petroleum spill does not enter any stream. The sale purchaser must have a Spill Prevention Control and Countermeasures Plan (SPCC), certified by a registered professional engineer, if fuel is stored on site (C6.341 Prevention of Oil Spills). Maintenance operations shall have a containment system to prevent site contamination. Plans shall be in place prior to any construction. All applicable state and federal laws would be enforced. Roads will be closed after salvage operations.

Alternative 5

Alternative 5 proposes management similar to Alternative 4 in Saltery Cove and would have similar effects as those listed above. Buffer widths for domestic water supply streams are 250 feet of no-cut harvest for this alternative.

Alternative 6

Alternative 6 would have the same units as in Alternative 5, but the units would be logged by helicopter and no road would be constructed. This would result in impacts similar to Alternatives 2 and 3. Sediment levels would be expected to remain within natural parameters. No-cut buffer widths are 500 feet for domestic streams for this alternative. Harvest retention would equal that of Alternative 3.

Alternative 7

This alternative would be logged by helicopter and no roads would be constructed. Impacts to water quality would be similar to those in Alternatives 2 and 3. Sediment levels would remain within natural parameters. This alternative would include fewer harvest units than any of the other proposed alternatives. The location of the small OGR in this alternative encompasses approximately three fourths of Units 614-001a and 614-034b. Units 614-001b, 614-002, and 614-034a are eliminated under this alternative. This should result in no impact to the domestic water supply for Saltery Cove. Harvest would be at least 250 feet from any domestic water supply stream.

Scenery

The natural scenic backdrop to the south of Saltery Cove is a major part of the "Alaska wilderness experience" enjoyed by the residents of Saltery Cove and marketed by Sportsman's Cove Lodge.

Long, broad ridges made up of generally steep valley walls that have a uniformly forested appearance characterize the terrain to the south and west of Saltery Cove. Elevations of these ridges and summits are approximately 2,000 feet above Saltery Cove. The viewshed to the south and southwest has a natural, unaltered appearance

except for the private residences and lodge (Figure 3-3). Major windthrow does not seem to be present in large patches.

The viewshed to the north and west across Skowl Arm is private land and has been extensively logged in recent years. Most of the low-lying terrain around the cove is private land or encumbered national forest. The national forest maintains 1,000-foot 'no-cut' buffers on all its shorelines. The project area is visible from boats or airplanes but not from the residence or lodge locations.

The ridge southeast of Saltery Cove is allocated to the Old-growth Habitat LUD with a VQO of Retention. The rest of the National Forest System lands in this area are allocated to the Timber Production LUD with a VQO of Maximum Modification. The cove has a high degree of solitude broken only by occasional floatplanes or boats. Supply boats, commercial fishing boats and log rafts travel past the cove in Skowl Arm, between Polk Inlet and Ketchikan.

Swan Lake sits at the mouth of a U-shaped, north-facing valley with steep, uniformly forested slopes rising to broad ridges on either side of the lake. The ridges on each side rise to about 2,000 feet. The landscape around the lake is natural and unaltered. The entire viewshed is designated Timber Production with a VQO of Maximum Modification. Main viewpoints occur along the northwest shore of the lake.

Planned units 614-001a, 614-001b, and 614-002 are the primary units of concern occupying the main viewshed behind Saltery Cove. Over time, harvested areas will resemble natural disturbance patterns but at a larger scale than normal, the extent of which depends on the amount of retention left standing in the different alternatives.

Alternative 1

No changes to the scenery would result from implementing this alternative. Occasional log rafts from other sales in the area would pass by the mouth of Saltery Cove.

Alternative 2

Harvest units 614-001a and 614-001b meet a VQO standard higher than the required Maximum Modification. Several variations of clearcuts with reserves are prescribed for different portions of these two units. Unit 614-001a would have alternating cut and leave strips, and would retain trees along cliffs and steep slopes at the upper portions of the unit. Unit 614-001b would leave about 10 percent of the overstory throughout the unit or in patches as opportunities and safety allow. A very wide stream buffer on either side of the stream between these units would consist of a 250-foot no-cut zone and an additional 250-foot zone of 50 percent retention. The retained structure would break the units' long backline and create the appearance of smaller clearcuts. These practices decrease the number of trees cut, create openings that blend with the terrain and decrease the associated visual impact. After implementing this treatment, Units 614-001a and 614-001b would meet the VQO of Modification (Figure 3-4). Refer to Appendix 1, Unit Cards, for descriptions of retention.

The VQO west of Swan Lake is Maximum Modification. Unit 614-002 is a large unit directly above the west shore of Swan Lake. A 200-foot 'no-cut' buffer would be left around the lake. A series of tapered retention corridors would extend 300 to 600 feet beyond this buffer. These corridors would be 200 feet wide near the lake.

Unmerchantable trees would be left in the rest of this unit and in the harvested areas between the retention corridors, as opportunity and safety allow. The lake buffer and the unharvested corridors would screen much of the logged areas. The visual impacts of harvesting this unit would be most obvious from the northeast corner of the lake. Many recreationists walk the trail located on the northwest shore of the lake. Only small portions of the backline would be visible from other viewpoints of the lake. After implementing this treatment, Unit 614-002 would meet a Partial Retention VQO from the trail and most viewpoints on the lake.

Unit 614-034a would meet a VQO of Modification. It is located on a knob south of the lake. The unit blends well with the terrain and would be broken up by stream buffers and patches of unharvested trees; however, it is still dominant in the middle ground. Units 614-002 and 614-034a both meet a VQO that is higher than the VQO identified in the Forest Plan.

Alternative 3

The visual effects of harvest under this alternative would be less than Alternative 2 in both the Swan Lake and Saltery Cove viewsheds. In the unit above Swan Lake (614-002), the prescribed silviculture system would retain about 50 percent of the original stand density. This stand density extends 200 feet beyond the lake buffer to about 200 feet below the backline. The no-cut buffer and the adjacent 50 percent retained stand density would screen much of the remaining unit and the upper 50 percent removal would soften the length of backline that is still visible. About 25 percent of the original stand density would be retained in the rest of the unit.

As in Alternative 2, Units 614-001a and 614-001b would include the wide stream buffer between these units and the no-cut areas along cliffs and steeper slopes near the top of the units. In addition, 50 percent of the original stand density would be retained above the cliffs. In the remaining portion of these units, 25 percent of the original stand density would be retained. After implementing this treatment, both units would meet a Partial Retention VQO, which is a higher standard than required by the Forest Plan (Figure 3-5).

Alternative 4

The visual effects of harvest would be similar to Alternative 2 except that fewer trees would be left in the cable-yarded corridors above Swan Lake. The units may meet a Modification VQO but would remain well within the guidelines of a Maximum Modification VQO. The impacts of harvesting Unit 614-034 would be the same as in Alternative 2.

The LTF would not be visible from Saltery Cove but would have extensive visual impacts from the mouth of McKenzie Inlet. The operating area, an excavated back wall, the area from the ramp to the water, and the steep, full bench road accessing the operating area would directly face the water. A series of benches will reduce the impact of the road by breaking up the rock cuts created by this full-bench road. No opportunities to screen the area have been found.

After operations at the LTF are complete, the site will be covered with overburden, recontoured, and revegetated. In 15 to 20 years, vegetative growth will partially soften

or hide the impacts of the LTF and road. There will still be significant visual impacts from viewpoints at the mouth of McKenzie Inlet, which will be seen by Sportsman's Cove Lodge clients boating to and from McKenzie Inlet. The impacts from background viewing positions along the north shore of Skowl Arm will be softened enough so that this activity will meet the adopted Forest Plan VQO of Maximum Modification.

Alternative 5

The visual effects of harvest and the LTF would be the same as in Alternative 4.

Alternative 6

The scenery impacts in this alternative would be the same as Alternative 3. The units above Saltery Cove and Swan Lake would be logged by helicopter. Units 614-001a and 001b and Unit 614-002 all have the same combination of clearcut with reserves and partial cut prescriptions as in Alternative 3. As in Alternatives 2 and 3, areas that are harvested will have less visual impact than areas logged by cable due to the absence of often highly visible cable yarding corridors. As with Alternative 3, there will be no roading in this area and no LTF at the mouth of McKenzie Inlet. Hence the only visual impact associated with the transfer of logs from the unit to the water will be the temporary presence of barges, either near the mouth of Saltery Cove or McKenzie Inlet.

Alternative 7

This alternative would eliminate all of Unit 614-001b and much of Unit 614-001a. Only a very small portion of Unit 614-001a may be visible from inside the cove and from the entrance to the cove. This would result in a Partial Retention objective easily being met in this viewshed. In the Swan Lake viewshed, the impacts would also be much less than the other alternatives. Units 614-002 in the foreground and 614-034a in the middleground are dropped in this alternative. Only Unit 614-034b on the middleground slopes at the head of the lake is included in this alternative. Hence there will be no impact in the foreground portion of the Swan Lake viewshed, while, in the middleground, Unit 034b will meet a modification VQO as it does in the other alternatives. Over time, harvested areas will resemble natural disturbance patterns but at a larger scale than normal, the extent of which depends on the amount of retention left standing in the different alternatives.

Lodge Business

Clients and local residents enjoy the "wild" scenery and solitude while canoeing or hiking around Swan Lake, fishing in Clarence Strait, sightseeing in Saltery Cove and McKenzie Inlet, or relaxing during the quiet evening. The clients' main activity is saltwater fishing outside of the project area. The lodge's high use period lasts from June 1 through September 30.

The Sportsman's Cove Lodge has 30 summer and 8 year-round employees. For the past six years, the lodge has sold out all room vacancies between Memorial Day and September 30 one year in advance. Annual gross income has been $1.6 million per year with clients generally spending about $1,000 per day on the vacation package (including transportation). At full capacity, the lodge can house 24 people. The lodge books about 1,000 clients per season; approximately half are return clients.

The lodge generally takes its clients saltwater fishing between Thorne Bay and Cape Chacon. The clients appreciate the solitude of the cove. The average client is not opposed to timber harvest. Evidence of past logging exists in the surrounding areas of McKenzie Inlet, Skowl Arm and Polk Inlet. The lodge owners are shifting their focus from strictly saltwater fishing to promoting an "Alaskan wilderness experience." They are placing additional emphasis on marine and terrestrial wildlife viewing, particularly by offering evening tours in McKenzie Inlet. On stormy days in Clarence Strait, they take clients to see the fish pass at Dog Salmon Creek in Polk Inlet or fish in McKenzie Inlet. Planned closed roads would provide a closer location for land-based activities in the evenings on stormy days. A different type of land-based activity would be available as closed roads would be available for hiking activities. The opportunity would exist for a business responding to a changing clientele.

We do not have knowledge of any studies conducted in southeast Alaska regarding the effects of harvest activities on the economics of fishing lodges. However, we conducted an informal study in which we interviewed several lodges that have timber harvest in their facility viewshed or where clients' activities occur. They responded generally by saying they feel harvest has not had an impact on the economics of their lodge business. Several other lodges were not contacted but they are in business and have timber harvest in their vicinity. See the Appendix of the Socio-Economic Report in the Draft EIS.

Lodge owners who take clients fishing and sightseeing were concerned about what they were likely to experience when traveling near their facilities in the project area because of this sale. Although it is not possible to predict exactly what to expect during the life of a sale in any given year, we have taken a "best guess" approach to describing what is likely to occur if a given alternative is selected. Actual activities may vary once the sale is sold. See Lodge Business under Issue 2 and Community Privacy and Security under Issue 3.

The actual logging activity may have an impact to the clients, but it is impossible to say that the impact will be positive or negative to all. For example, some clients may see the logging activity as detracting from their expectations that they are visiting a wild place with little to no development. Others, however, may find the logging activity interesting, especially if they have never seen helicopter yarding in action. In this sense, the logging activity may actually serve to enhance their overall experience. The difference between the alternatives, based on the length of the sale and the actual activity that clients may witness, is discussed earlier in the response to comments appendix and under Lodge Business, Issue 2.

Table 3-2 displays the type of activities that may be encountered which could affect users recreating near the project area.

Table 3-2: Logging Activities Associated With Each Alternative Under Issue # 1

Alt #	Use of McKenzie LTF	Saltery or McKenzie Bagboom	Road Construct. (seasons)	Cable Logging (seasons)	Heli Logging (seasons)	Tugs w/ Rafts or Bagbooms (seasons)	Crew / Supply Traffic (seasons)	Barges for Heli Yard to Water (seasons)
Alt 2	No	Yes / Yes	NA	NA	1	1	1	1
Alt 3	No	No / Yes	NA	NA	1	1	1	1
Alt 4	Yes	No	2-4	2-4	2-4 Minor*	2-4	2-4	None
Alt 5	Yes	No	2-4	2-4	2-4 Minor*	2-4	2-4	None
Alt 6	No	McKenzie	NA	NA	1	1	1	1
Alt 7	No	Yes/Yes	NA	NA	1	1	1	1

* Alternative includes several helicopter settings.

It is expected that harvest activities in alternatives that include predominantly helicopter logging with only a few restrictions would be completed in one season. As restrictions are added, more seasons are needed. Road construction usually requires at least a portion of a season as lead-time to develop the LTF and road accessing Unit 001. A full road system would require two seasons to build and would run concurrently with logging.

Alternative 1

Changes in the lodge business would not result from activities on national forest system lands.

Alternative 2

After implementing Forest Plan standards and applying mitigation measures, we expect no negative effects to the saltwater fish populations. Most sport fishing activities occur outside the project area and Saltery Cove. Changes to the surrounding scenery created by timber harvest would change the "Alaskan Experience", as defined by the lodge owners. Harvest activities would be seen and heard by clients while recreating in Saltery Cove or on Swan Lake. Helicopters may yard logs to the east end of Saltery Cove. Logs would be dropped onto a barge or into a water bagboom. Disturbance from these activities may include high noise levels during the long daylight hours. Flight path restrictions would be placed on the operation to avoid flights over residences. Timber harvest would be completed in the shortest time relative to the other alternatives since there would be no timing restrictions on helicopter operations. We do not anticipate a floating log camp in Saltery Cove because of existing camp options nearby (Smith Cove or Polk Inlet).

The lodge owners indicated that their clients would generally not be concerned about timber harvest and associated activities. However, they do value the natural scenic backdrop for relaxation and photography. In the past, the high demand for the lodge's services allowed any vacancies created by timber harvest activities to be filled by other waiting clients. Preliminary information for the 2001 season indicates business will be slower than normal. Information provided by the lodge owners indicates a moderate risk of losing recreation industry jobs (Social Economic Report, project file).

Alternative 3

This alternative harvests less volume than Alternative 2, resulting in fewer visual impacts. Restrictions of helicopter flight paths and periods of operations would

decrease the disturbance to residents and lodge clients. Helicopter yarding operations would be allowed in Saltery Cove only between the hours of 7 a.m. and 3 p.m. between Memorial Day and the end of September. These hours coincide with the period when most clients and residents are fishing outside of the cove. These restrictions would extend operations, possibly into a second season. The timber operator may choose to fly logs to McKenzie Inlet due to the daily restrictions applied to helicopter operations in the cove. Effects are discussed under Alternative 4. Long day helicopter operations in McKenzie Inlet could have an effect on evening tours by increased noise levels and the presence of log bag booms and barges near fishing and crabbing areas. Information provided by the lodge owners indicates a low risk of losing recreation industry jobs (Social Economic Report, project file). We do not anticipate a floating log camp in Saltery Cove because of existing camp options nearby (Smith Cove or Polk Inlet).

Alternative 4

The effects of this alternative are higher than Alternative 2. The LTF and road construction would create additional noise and visual impacts. This noise would be a quarter mile or more south of the cove and would not directly affect activities in the cove. Timber harvest operations may take 3 to 4 years to complete because of the road and LTF construction and the layout of cable yarding systems.

Additional effects over Alternative 2 include the visibility of the LTF and associated booming grounds during evening tours to McKenzie Inlet, or rafting activities during the day, which could displace the stormy day fishing excursions to McKenzie Inlet.

Timber harvest activities may cause a decrease in occupancy rates or a shift in the clientele. The type of recreational activities and services offered or marketed would be determined by the resiliency of the lodge and Saltery Cove community. Information provided by the lodge owners indicates a moderate risk of losing recreation industry jobs (Social Economic Report, project file). We do not anticipate an upland camp at the McKenzie LTF because of limited space. A floating camp near the LTF would have a relatively exposed location. We anticipate the use of existing nearby cove options for camp facilities (Smith Cove or Polk Inlet).

Alternative 5

The effects of this alternative would be the same as in Alternative 4.

Alternative 6

The effects of this alternative would be similar to Alternative 3. We anticipate operations would be limited to one to two seasons of helicopter yarding. Silvicultural prescriptions would retain more structure in Alternatives 3 and 6, resulting in less visual impacts. Based on the information provided by the lodge owners, we would anticipate a low risk of losing recreation jobs. We do not anticipate a floating log camp in Saltery Cove because of existing camp options nearby (Smith Cove or Polk Inlet).

Alternative 7

The effects of this alternative would be similar to Alternatives 3 and 6. However, much less volume would be yarded near Saltery Cove due to the expansion of the Old Growth Reserve on the west side of Swan Lake. This would result in a relatively short

operating season. Based on the information provided by the lodge owners, we would anticipate a low risk to recreation jobs (Social and Economic Report). An option under any alternative could be to extend the lodge-operating season by leasing lodge space to loggers. We do not anticipate a floating log camp in Saltery Cove because of existing camp options nearby (Smith Cove or Polk Inlet).


Skowl Arm
Saltery Cove
Sportsman's Cove Lodge
Swan Lake
Kluanil Cove
Spiral Cove
Island Point
Clarence Strait
McKenzie Inlet
1
2
Doctor Point
Clover Bay Lodge
Skin Island
Clover Bay
Chasina Point
Barren Mtn
Sunny Cove
West Arm
Sunny Point
Cholmondeley Sound
N
W
E
S
Project Boundary
Freshwater (Inset Maps Only)
Saltwater
Contours (Inset Maps Only)
Viewsheds Analyzed
Foreground
Middleground
1 0 1 Miles
U.S.D.A. Forest Service - Alaska Region
"The Forest Service cannot assure the reliability or suitability of this information for a particular purpose. Original data elements were compiled from various sources. Spatial information may not meet National Map Accuracy Standards. This information may not be updated, corrected, or otherwise modified without notification. For additional information about this data, contact Tongass National Forest, Ketchikan Area, Craig Ranger District."
Cholmondeley FEIS
Viewshed Map
Figure 3-3

Cholmondeley FEIS

Harvest Simulation 614-001 A & B

Alternatives 2, 4, & 5

Figure 3-4

Not to Scale

Cholmondeley
FEIS

Harvest
Simulation
614-001 A & B

Alternative 3

Community Privacy and Security

A small community is situated on the southwest shore of the Saltery Cove. Sportsman's Cove Lodge is also located in the cove. Residents and visitors to the cove value its scenic beauty, solitude, and peacefulness. The remote character and lack of roads were among the qualities that drew them to this location.

Sportsman's Cove Lodge is currently the largest source of noise, with the use of boats and floatplanes to transport their guests to various destinations. Natural sights and sounds, however, still predominate in the cove.

The residents are concerned that additional road access would disrupt the peace and security of their homes and cabins. They believe roads would invite ATV use and additional hunters to the area. They fear hunters would be shooting close to their homes and cabins, and the increased access would promote vandalism and theft.

The national forest is open to the public at all times. This fact makes it virtually impossible to protect private homes adjacent to the forest lands. A certain element of risk is present in remote living anywhere. The IDT consulted with Forest Service law enforcement regarding what regulations apply to security concerns. Under 36 CFR 261.10, which will be applied for the Cholmondeley project, the following are prohibited: (d) Discharging a firearm or any other implement capable of taking human life, causing injury, or damaging property as follows:

(1) In or within 150 yards of a residence, building, campsite, developed recreation site or occupied area, or

(2) Across or on a National Forest System road or a body of water adjacent thereto, or in any manner or place whereby any person or property is exposed to injury or damage as a result in such discharge.

A contract clause will be applied to limit road use by the contractor for administrative use only. This will be applied during timber harvest and road building.

Alternative 1

No changes would occur to the security, solitude, and peacefulness of the local surroundings.

Alternative 2

Noise levels created by chainsaws and helicopters would increase during timber harvest operations. Helicopter operations will tend to have long working hours during long summer days. The trade-off is a shorter season. However, since no roads would be built, no changes in access would occur. The security, solitude, and peacefulness of the local surroundings would remain near natural conditions.

Alternative 3

Effects of this alternative would be the same as Alternative 2.

Alternative 4

Noise levels would increase in the area because of chainsaws, cable yarders and logging trucks. A LTF in McKenzie Inlet, 4.3 miles of classified road construction, and 0.4 mile of short-term road construction would provide access to the area behind

the residences and lodge. These roads would be closed to motorized uses by blocking them with boulders, removing culverts and bridges, or otherwise making them impassable. A CFR closure order would enforce the restriction against motorized uses. "Walk-in" hunting may increase, however the road would be more than ¼ mile from the community. Though this might be only periodic and infrequent, it would reduce the feeling of remoteness now experienced by the resort clients. The lodge could see an increase in operating cost to supply quarters and wages for a winter watchman. We do not anticipate any significant decrease in safety beyond the normal safety of any remote area of Alaska.

Alternative 5

The effects of this alternative would be the same as Alternative 4.

Alternative 6

Alternative 6 has similar effects to Alternatives 2 and 3, primarily due to no road construction.

Alternative 7

Alternative 7 has similar effects to Alternative 6. However, much less volume would be yarded and much less duration of noise levels would accompany this alternative.

Subsistence

Subsistence users of Saltery Cove believe a change in access to the area could negatively affect their subsistence use by bringing more hunters to the area.

Saltery Cove residents live a subsistence life-style, with hunting, fishing, and gathering being typical activities. Deer are hunted above Saltery Cove. Ketchikan is not a subsistence community and shows little use of the area for sport hunting. Much subsistence hunting/gathering is done through saltwater-based activities in areas adjacent to the project.

Alternative 1

Hunting use, especially from outside the area, would remain at the current low level.

Alternative 2

We expect no change in the subsistence use of this area. No additional roads or access points would be constructed. Competition among subsistence hunters would not change since changes in access would not occur.

Alternative 3

The direct and indirect effects of this alternative would be same as Alternative 2.

Alternative 4

Additional access to the area would be available at the LTF. There could be additional hunting pressure in the area of the LTF and from the roads. We anticipate some competition between subsistence users and some competition from Ketchikan hunters. However, roads will be closed. See subsistence section for details.

Alternative 5
Additional access to the area would be available at the LTF. There could be additional hunting pressure in the area of the LTF and from the roads. We anticipate some competition between subsistence users and some competition from Ketchikan hunters. However, roads will be closed. See subsistence section for details.

Alternative 6
The direct and indirect effects of this alternative would be the same as Alternative 3.

Alternative 7
The direct and indirect effects of this alternative would be the same as Alternative 2.

Wind

Residents of Saltery Cove are concerned that large clearcuts would funnel wind and increase the potential for property damage at their residences and anchorages.

Wind patterns are very unpredictable. Past evidences and general topography have been used to develop subjective ratings for risk hazard of windthrow. A draft windthrow susceptibility model (Kramer 1997) was also considered in our ratings. However, the model is still waiting for field verification. One-thousand foot beach buffers will provide protection around the anchorages and facilities. Silvicultural systems that leave structure standing (reserves trees) will tend to break up wind funneling effects. The potential for funneling and windthrow as the result of harvesting or road building increases as the size of the openings in the forest canopy increase.

Forty percent of the units in the Saltery Cove area have some acres rated at moderately high to high for windthrow risk. However, we do not anticipate major increased wind problems in the Saltery Cove residential area, considering the distance from the harvest units to residences and proposed mitigation measures mentioned above for all alternatives. Small amounts of windthrow in buffer strips and around unit margins is common. The larger-than-standard buffers prescribed should ensure the necessary standing structure for cove protection as well as water quality protection. Refer to the silviculture report in the planning record and the unit cards, Appendix 1 of this EIS, for individual unit risk ratings.

Alternative 1
According to Saltery Cove residents, winds tend to come from the south and west of Saltery Cove. No changes in the wind patterns or to anchorage safety would occur in Saltery Cove beyond the natural level of risk. Most of the strong winds in this area come from either the south, down the Swan Lake drainage, or the west, from McKenzie Inlet.

Alternative 2
The helicopter yarding system used in this alternative would leave more trees in the harvest units and along streams than conventional clearcut logging. Forest canopy openings would be kept relatively small, and no roads would be built. These practices would help retain wind resistance within the units. In addition, the forest surrounding the community would provide a buffer around the cove. Some windthrow may occur, but it should be limited to individual trees, and wind speeds should dissipate or return

to natural ranges before reaching the cove (Silviculture Report, project file). Large wind events are part of the disturbance regime of these ecosystems. Though they occur infrequently, they can blow down entire stands. Timber harvest under this alternative would have little influence on the outcome of a large wind event.

Alternative 3

The effects of this alternative would be similar to Alternative 2. More trees would be left in the units to mitigate visual concerns, which may also mitigate wind effects.

Alternative 4

Roads would be built under this alternative, but the same mitigation measures within harvest units would be applied as in Alternative 2. While the roads may enhance wind speed, the beach buffer and structure left in the units should be wide enough to dissipate it (Silviculture Report, project file).

Alternative 5

The effects of this alternative would be the same as Alternative 4.

Alternative 6

The effects of this alternative would be similar to but slightly less than that of Alternative 3 due to one unit being dropped.

Alternative 7

The effects of this alternative would be the least of all action alternatives. Only three small units spaced far apart would be harvested, due to the location of the OGR. The Forest Service anticipates that both the distance and small size of the openings would limit the wind effects reaching the cove.

Issue 2 - Effects on Clover Bay

Scenery

Clover Bay Lodge owners are concerned that any change in the natural setting would negatively affect their clientele by impacting their "wilderness experience."

The gently rolling terrain immediately around the north and south shores of Clover Bay is uniformly forested. Massive cliffs and rock outcrops dominate the head of the bay. Seal haul-outs are located along the south shore of the cove. The area south and west of Clover Bay is allocated to the Old-growth Habitat LUD with a VQO of Retention. The area north of the bay is allocated to the Timber Production LUD with a VQO of Modification in the foreground and Maximum Modification in the middle ground. Almost all the area seen from the bay in this LUD is in the foreground. The viewshed is presently in a natural, unaltered condition except for the floating lodge and its associated floats and ties to the north shore.

The intricate shoreline and terrain between Clover Bay and Doctor Point has a diverse, rolling, and knobby appearance (Figure 3-3). Further back from shore, the middle ground has a similar appearance though larger in scale. Cliffs and rock outcrops are evident in both the foreground and middle ground. These larger scale landforms in the middle ground mark the edge of a very rugged, diverse series of massive knobs and intervening lake basins located in the middle of the project area, northwest of Clover Bay. Many cliffs and rocky summits dominate the terrain, and the lakes are connected

by a variety of rapids and waterfalls. Though the edge of this area is visible from saltwater to the east, its full scenic attributes are only apparent to someone flying over or actually standing in the midst of this rugged landscape. The slopes visible to Clarence Strait are mostly forested, though the area as a whole is predominantly muskeg, alpine, and rock. Most of the foreground is allocated to the Old-growth Habitat LUD and within the beach fringe, with a Retention VQO. Most of the middle ground is allocated to the Timber Production LUD, which has a VQO of Maximum Modification. The viewshed from Clarence Strait is natural and unaltered.

Alternative 1 (No Action)

No changes to the scenery would result from implementing this alternative.

Alternative 2

The backline of Unit 616-010 and a portion of harvested ground would be visible in the middle ground from the south side of Clover Bay (Figure 3-6). It is the only unit visible from the bay. This unit meets the VQO of Modification and would achieve the VQO of Partial Retention within 5-10 years when the unit has regenerated.

Between Clover Bay and Trollers Cove, Units 616-022, 616-023, and 616-123 would be harvested on the very visible middle ground and foreground slopes above the shoreline (Figure 3-3). The retention of trees in several 100- to 200-foot corridors in Units 616-022 and 616-023, and leaving reserve trees in Unit 616-123 would reduce the overall scale of harvest (Appendix B). The narrowness of Unit 616-123 and its location reduces its visibility. These harvest treatments would meet the VQOs of Maximum Modification in the middle ground and Modification in the foreground. Planned harvest acres in this alternative total 1,511.

Alternative 3

The viewshed from Clover Bay would remain unchanged in this alternative because Unit 616-010 would not be harvested. Harvest of all other units would be similar to that of Alternative 2. Therefore, the effects of harvest on the views from Clarence Strait would be the same as described above in Alternative 2. Planned harvest acres in this alternative total 1,489.

Alternative 4

The conditions of the viewshed from Clover Bay would be similar to those described under Alternative 2, except for the additional impacts of the LTF in the bay and cable yarding in Unit 616-010. The LTF would be located on the north shore and create impacts just inside the entrance of the bay. Planned harvest acres in this alternative total 941.

An on-site review of the proposed LTF site and operating area with the project engineer indicated that the operating area and a small rock pit can be located in a way that will create a screen of at least 60 to 75 feet ranging up to about 150 feet that will hide much of this development from the bay. Boaters entering the mouth of the bay may get a partial view up the road corridor and into the operating area behind a screen of trees, about 4 to 6 trees deep. Further into the bay, a 200-foot wide forested peninsula will screen the activity. Directly south of the LTF, the boater will see a 40- to 60-foot wide rock ramp extending into the water. A ramp, approximately 150 feet long, will be visible at lower tides. A 60-foot vegetation buffer will screen the short road, from the ramp to the operating area (except for the first section of road as it

makes a 90-degree turn from the ramp), from viewpoints to the south and southwest. This LTF development would meet the VQO of Modification.

Mitigation measures implemented after logging would further lessen the impacts of the LTF. These measures include re-contouring and seeding the cut slopes, and seeding the ramp near the shoreline, above normal high tide (Appendix D). Post-harvest alder growth would enhance the screen and reduce the visual effects within 5 to 10 years. Elements of the LTF would remain partially visible to boaters entering the cove. The LTF, sort yard, and roads would also remain visible from the air. Depending on the methods used to get logs from the LTF to the mill, barges or log rafts would be visible during logging operations. Permits obtained from the U.S. Army Corps of Engineers by the contractor would determine where temporary booming areas would occur in Clover Bay. Minor amounts of floating debris could accompany LTF activities; however, contractors are responsible for keeping waterways as free of debris as possible.

The visual effects of harvest as seen from Clarence Strait would be much less in Alternative 4 than Alternatives 2 and 3 because the units north of Monie Lake would not be harvested. Small portions of the units just south of Monie Lake would be visible. After harvest, these units would meet the VQO of Modification and almost meet the higher standard of Partial Retention.

Alternative 5

Visual effects of harvest under this alternative would be similar to those of Alternative 2 as seen from Clover Bay and Clarence Strait. The units would be yarded with cable equipment, so there may be less structure remaining in the units, than in Alternative 2, which is helicopter yarded. The visual effects of the LTF in Clover Bay would be the same as those described in Alternative 4. Planned harvest acres in this alternative total 1,511.

Alternative 6

From within Clover Bay there will no visual impacts from harvest units, roads or log transfer sites. The LTF proposed just inside the entrance to the bay is dropped in this alternative, as are any roads near this bay. The two units closest to this bay, 617-009 and 616-010 will be logged by helicopter rather than roaded. In addition, the upper portion of Unit 616-010 that is visible from the south side of Clover Bay will be dropped.

Units to the north of Clover Bay that sit on the slopes facing Clarence Strait will be helicopter logged as in Alternative 2 (Units 616-018, 019, 022, 023, 123, 124 and 615-125). Because of the absence of cable yarding corridors and the retention of unmerchantable trees, the contrast created by these units will be softened to a degree. In this alternative a LTF will be located just outside Trollers Cove, just west of Island Point. Extending from this LTF will be a road running along the lower slopes of the ridge on which many of the above units are located.

Portions of the road south of the LTF will be visible from the saltwater areas south of Island Point where some fishing occurs either by Clover Bay clients or by Ketchikan or Prince of Wales Island residents. The visual impacts from this road will be either from

a few visible rock cuts or from a narrow shadow created across the forested slopes by the right-of-way clearing. Planned harvest acres in this alternative total 1,486.

Alternative 7

This alternative contains no roads or LTFs. Therefore, there will be no visual impacts to the bay. This alternative only harvests three units north of Monie Lake (615-025, 616-024, and 616-123). These units are most visible from the saltwater areas near Island Point that are used by some Clover Bay clients for fishing. This alternative harvests 355 acres, which is the least of any of the action alternatives.

Lodge Business

The Clover Bay Lodge is a floating lodge that anchors in Clover Bay between June 1 and mid-August. It is authorized for shore ties and a waterline under a Forest Service special use permit. The lodge owners report that they have hosted about 4,800 people during the past 16 years. They estimate that repeat clients represent 85 percent of their business. The lodge employs up to seven seasonal employees in addition to the four owners/operators.

Saltwater fishing from Island Point to southeast of Chasina Point and inside of Skin Island is the main activity offered by the lodge. They also provide opportunities to view marine mammals, eagles, and bears on the south and east sides of the cove. The lodge gears marketing to a wilderness/ecosystem/wildlife experience. Lodge clients are described as opposing any activity that leaves its "footprint" on the land or changes the "pristine" character of the area. The length of the lodge's operating season is planned so the exposure of their clients to the commercial seine fishing fleet is limited.

The Clover Bay Lodge owners believe that any harvest activity in the area would so negatively affect their clientele that they would have to close their business. The option of moving the lodge to a more remote and undeveloped area without a land allocation conflict on south Prince of Wales Island was briefly discussed with the lodge owners. Costs associated with moving the lodge would include towing costs ($5,000-10,000 round trip), new permits, mooring hardware, and licensing costs, additional client and supply transportation costs, and some additional start-up costs. Lodge owners believe this to be economically infeasible for their business.

The actual logging activity may have an impact to the clients, but it is impossible to say that the impact will be positive or negative to all. For example, some clients may see the logging activity as detracting from their expectations that they are visiting a wild place with little to no development. Others, however, may find the logging activity interesting, especially if they have never seen helicopter yarding in action. In this sense, the logging activity may actually serve to enhance their overall experience. A different type of land based activity would be available as closed roads would be available for hiking activities. The opportunity would exist for a business responding to a changing clientele.

We do not have knowledge of any studies conducted in southeast Alaska regarding the effects of harvest activities on the economics of fishing lodges. However, we conducted an informal study in which we interviewed several lodges that have timber harvest in their facility viewshed or where clients' activities occur. They responded generally by saying they feel harvest has not had an impact on the economics of their lodge business. Several other lodges were not contacted but they are in business and

have timber harvest in their vicinity. See the Appendix of the Socio-Economic Report in the Draft EIS.

The difference between the alternatives, based on the length of the sale and the actual activity that clients may witness is discussed earlier in the response to comments appendix and under Lodge Business, Issue 1. Table 3-3 describes our "best guess" of duration of the various logging activities.

Table 3-3: Logging Activities Associated With Each Alternative Under Issue # 2

Alt #	Clover / Island Pt. LTF	Clover / Clar.Strt. Bagboom	Road Construct. (seasons)	Cable Logging (seasons)	Heli Logging (seasons)	Tugs w/ Rafts or Bagbooms (seasons)	Crew / Supply Traffic (seasons)	Barges for Heli Yard to Water (seasons)
Alt 2	No / No	Yes / Yes	NA	NA	1-2	1-2	1-2	1-2
Alt 3	No / No	Yes*/ Yes	NA	NA	1-2	1-2	1-2	1-2
Alt 4	Yes / No	No / No	1-2	1-2	1-2 Minor	1-2	1-2	NA
Alt 5	Yes / No	No / No	2-4	2-4	2-4 Minor	2-4	2-4	NA
Alt 6	No / Yes	No / No	2-4	2-4	2-4 Minor	2-4	2-4	NA
Alt 7	No / No	No / Yes	NA	NA	1	1	1	1

* Timing restrictions in Clover Bay

The two offerings in the Clover Bay area would normally be offered back-to-back, which could extend the sale periods to beyond five years. As with Saltery Cove, extensive road building will add an additional season or two onto the length of operation.

Alternative 1

Changes in the lodge business would not result from activities on National Forest System lands.

Alternative 2

The ID Team does not anticipate negative effects to the fish populations in Clarence Strait in any of the action alternatives. Clients may see part of the backline of Unit 616-010 when entering along the south shore of Clover Bay. Scenic changes from Clarence Strait would be inconspicuous until visitors approach Trollers Cove.

Forest Service crews would be present in and around Clover Bay during reconnaissance and layout of this project. Helicopters would transport crews to units over the several months it would take to complete the work. Crew boats would also be seen on a daily basis. Disturbance associated with harvest operations includes increased noise levels, and the presence of log rafts and floating debris. Helicopter flight paths would be restricted to avoid flights over eagle nests and the lodge; however, no restrictions would be placed on the period of yarding operations. Yarding operations would occur during optimal weather conditions and the daily flight period would extend through the daylight hours. Timber harvest and yarding operations in Clover Bay would likely be completed in one season. Logs would be yarded with helicopters to a water bag-boom or barge in Clarence Strait or Clover Bay. Log barges may anchor in Clover Bay in the evenings or during storms. We would not anticipate a

floating log camp in the bay because existing camps are located nearby (Dora Bay, West Arm). In the worst case scenario, bag booms would appear in the Cove. However, the industry is moving toward the use of barges to avoid the "watering" impacts to logs. Log rafts may be visible at the entrance of the bay.

Lodge occupancy rates may decline depending on the actual sensitivity of the lodge clients to timber harvest. A shift in the type of clientele could also result from timber harvest and associated activities. The resiliency of Clover Bay Lodge would determine the type of recreational activities and services offered or marketed. A shift from more primitive to more developed recreational settings may occur, taking advantage of the opportunities created by timber harvest. However, there may be less opportunity for more developed recreation due to the lack of roads in this alternative. Information provided by the lodge owners indicates a moderate risk of losing recreation industry jobs (Social Economic Report, project file). The lodge owners believe that changing their marketing strategy or operating the lodge in another location would be cost prohibitive.

Alternative 3

The effects of this alternative would be similar to Alternative 2 except that Unit 616-010 would not be harvested. Therefore, no effects of timber harvest would be visible from Clover Bay. Yarding logs with helicopters into Clover Bay would not be allowed between June 1 and mid-August, when the lodge has been present in the past. Noise levels would be less than Alternative 2, but operations would likely extend into a second season. Based on information provided by the lodge owners, we would anticipate a low risk of losing recreation industry jobs (Social Economic Report, project file). We would not anticipate a floating log camp in the bay because existing options for camps are located nearby (Dora Bay, West Arm). In the worst-case scenario, bag booms would appear in the cove. However, the industry is moving toward the use of barges to avoid the "watering" impacts to logs.

Alternative 4

Constructing and using the LTF and roads would create noise and increase the visual effects of this alternative in Clover Bay. The noise level would be less than in the alternatives with helicopter yarding and the daily periods of operation would be shorter. Timber harvest operations may take longer to complete because of the LTF and road construction, and cable unit layout. The increase in harvest operation duration would be offset by the lower volume harvested.

A land-based logging camp may be needed to log the cable units. If constructed, the camp would be screened from the view of Clover Bay Lodge. In the worst-case scenario, log rafts would appear in the cove. However, the industry is moving toward the use of barges to avoid the "watering" impacts to logs.

Though the LTF would be screened, lodge occupancy rates may decrease or the type of clientele may shift. There would be a shift from pristine to more developed recreational settings. Information provided by the lodge owners indicates a high risk of losing recreation industry jobs (Social Economic Report, project file). There would be no harvest north of Monie Lake in Clarence Strait.

The construction of a LTF and the development of a road system from this LTF could result in the introduction of motorized recreation use on this system. This could

include the use of three- or four-wheeled ATVs or, more likely, motorbikes. The use of these vehicles, however, would be significantly limited if culverts and bridges were pulled, the roads put in storage as planned, and the LTFs restored, to some degree, to their natural condition. In any case, the existence of the roadbeds will make access through these roaded areas easier for hikers and hunters, and would probably increase the numbers and concentration of users to a small degree. Any motorized use as described above that was introduced in the vicinity of Clover Bay Lodge could be audible to clients staying at the lodge. Though this might be only periodic and infrequent, it would reduce the feeling of remoteness now experienced by the lodge clients.

Alternative 5

The effects of this alternative would be the same as Alternative 4, except harvest units north of Monie Lake would be slightly visible from Clarence Strait. Information provided by the lodge owners indicates a high risk of losing recreation industry jobs (Social Economic Report, project file). A land-based logging camp may be needed to log the cable units. If constructed, the camp would be screened from the view of Clover Bay Lodge. In the worst-case scenario, log rafts would appear in the cove. However, the industry is moving toward the use of barges to avoid the "watering" impacts to logs.

Alternative 6

The effects of this alternative would differ from other alternatives due to the newly proposed LTF west of Island Point and the lowering of the backline in unit 616-010. Clients fishing near Island Point would see the LTF, road, and sort yard area; however, the majority of fishing occurs further south. Four units north of Monie Lake would be converted from cable to helicopter yarding, making them less visible. The operation would be of less duration due to helicopter yarding. No road construction would occur south of unit 616-007, and helicopter yarding of units 009 and 010 would lower the duration of operations near Clover Bay. Options exist for a land-based or floating camp facilities. Floating camp options include Smith Cove, Polk Inlet, or other small, more exposed coves near Trollers Cove cabin. We anticipate the barging of logs is the only option at this exposed location. Based on information from lodge owners, we would anticipate a low to moderate risk of losing recreation industry jobs.

Alternative 7

This alternative would have very minimal impact to Clover Bay Lodge activities due to small harvest volume (the least of all alternatives), short duration of activities, and distance from Clover Bay. No roads or LTFs are planned for this alternative. The lodge clients would see and hear helicopter logging in the distance for a short season. Clients fishing near Island Point may see small portions of one or two units. Based on information from lodge owners, we would anticipate a low risk of loss of recreation jobs. A land-based camp is not anticipated. In the worst-case scenario, bag booms would appear in the Cove. However, the industry is moving toward the use of barges to avoid the "watering" impacts to logs.

Cholmondeley FEIS

Harvest Simulation 616-010

Alternative's 2, 4, & 5

Figure 3-6

Not to Scale

Domestic Water

Clover Bay Lodge operates a Class B public water system using water from the 135-acre Clover Lodge (F40A) watershed on Forest Service land. With new road locations in the Final EIS, there will be no road in the Clover Bay Lodge Watershed. Stream sedimentation would occur at natural levels.

No roads will be open to regular vehicle traffic after salvage operations are completed on any alternative. All alternatives have a 100-foot buffer in the domestic watershed stream.

Alternative 1 (No Action)

No harvest or road construction is planned under this alternative. Windthrow and stream sedimentation would occur at natural levels.

Alternative 2

Negative effects to water quality are not anticipated with this Alternative. Non-merchantable timber exists in the riparian area along most of the mainstem of the creek from which the lodge receives its drinking water. The lower part of one tributary in Unit 616-010 would receive a stream buffer. The upper part of the stream does not require a buffer, but would receive protection from falling and yarding disturbance. Considering the size of the trees and the location of this tributary, this buffer has a good chance of being windfirm. Blowdown of the buffer is possible but not likely.

Alternative 3

This alternative would have no effect on the domestic use watershed, resulting in no effect to the Clover Bay Lodge domestic water since no road building would occur in the domestic use watershed.

Alternative 4

The road proposed to access unit 616-010 was realigned, and this new alignment does not enter the watershed used for drinking water by the Clover Bay Lodge. Stream sedimentation would occur at natural levels.

Alternative 5

Alternative 5 proposes management similar to Alternative 4.

Alternative 6

This Alternative proposes management similar to Alternative 4.

Alternative 7

This Alternative proposes no impacts to the domestic water supply.

Wind

Lodge owners are concerned that wind pattern changes resulting from logging activities may increase wind in Clover Bay, affecting domestic water quality, displacing wildlife, and affecting clients' experiences. Wind patterns are very unpredictable. Past observances and general topography in Clover Bay have helped develop subjective ratings for risk hazard of windthrow following harvest immediately around individual units. Between the various alternatives, the number of units that fall

in the high or medium high risk factor falls between 14 and 100 percent of the units north of Clover Bay. The two closest units are separated from the lodge by at least 1700 feet of timber and in a direction (north) from the lodge that would not affect the lodge.

The presence of log rafts or barges may actually break up the wave action normally coming from the east. Openings created by logging and associated activities may create limited amounts of windthrow in the immediate area of the activity and should not affect the lodge or other water-associated activities. Small natural gaps are common in the woods, and wildlife are accustomed to traveling through or around them. Refer to the unit cards, Appendix 1 of this EIS, for individual unit risk ratings.

Alternative 1

No harvest or construction is planned under this alternative. Windthrow and wind patterns would remain at natural levels. Storm winds generally come from the southeast, with a local easterly during high wind events.

Alternative 2

No roads or LTFs would be constructed under this alternative. Stream buffers on the drinking water stream should limit windthrow to insignificant amounts.

Alternative 3

Effects would be the same as in Alternative 2.

Alternative 4

Openings in the forest canopy created by road corridors, harvest units, or LTF construction increase the risk for blowdown to occur. Minor amounts of random blowdown are anticipated along the edges of created openings. Larger openings result in a larger risk of blowdown. Trees growing close to the shoreline will have increased windfirmness, which is an important factor in the proposed screening of the upland sorting area near the low-angle ramp associated with the LTF.

The stream buffer planned for the drinking water creek will help limit the effects of windthrow on water quality. We do not anticipate significant effects to water quality from windthrow.

Approximately 1,700 feet of forested land separate Clover Bay Lodge and the road corridor. This buffer should eliminate any wind pattern changes near the lodge. Harvesting the units north of Clover Bay should create minimal wind-related effects, as the strong winds generally come from the south.

Small natural gaps created by individual or small groups of trees being blown down are a natural occurrence on the Tongass. Wildlife should not be significantly affected by windthrow.

Alternative 5

Effects are the same as in Alternative 4.

Alternative 6

No road or LTF would be constructed within the wind influence area of Clover Bay. Windthrow and wind patterns would occur at natural levels.

Alternative 7

Alternative 7 would have no wind effects on Clover Bay.

Issue 3 - Effects on Sunny Cove

Domestic Water

Two year-round residents and several intermittent residents (a total of seven residences) get domestic water from the Drinking Water Creek Watershed east of Sunny Cove. The private water system is not regulated by the State of Alaska. The residents also use water from Drinking Water Creek to clean oyster trays twice a year. Residents are concerned that timber harvest and associated activities would reduce the quality of their water supply.

Please refer to Issue 1 discussions for general effects of timber harvest on water quality and streamflow and the results of past turbidity monitoring on the Tongass National Forest.

Alternative 1

No harvest or road construction is planned under this alternative. Windthrow and stream sedimentation would occur at natural levels.

Alternative 2

Four harvest units are located in the watershed from which Sunny Cove residents get their water (Figure 3-7). Unit 675-029 borders a Class II stream that would be protected by a 100-foot buffer. A tributary to the domestic water stream runs through Unit 675-028. A 100-foot buffer on this section would protect the domestic water use downstream. Unit 676-489 has a Class II stream on one side, with a 100-foot buffer. Another stream is on the other side of the unit, approximately 300 feet away. Unit 676-462 has a stream on one side. There is approximately 100 feet between the unit and the stream. In addition, helicopter yarding allows more trees to be left standing in the units and further reduces the potential for windthrow and sediment production. No roads are constructed under this alternative.

Alternative 3

Timber harvest and road construction are proposed in the watershed from which Sunny Cove residents get their water. The streams adjacent to Unit 675-029 and within Unit 675-028 are protected as in Alternative 2.

The proposed road through the Drinking Water Creek Watershed includes four crossing on tributaries to Drinking Water Creek. The road is located on relatively gentle sideslopes, and climbs steadily through the watershed. The road construction is expected to be almost entirely rock overlay, especially near the stream crossings where approaches to log stringer bridges will be constructed. In this setting, rock and log haul during wet weather will generate sediment from the road surface.

Site conditions at the four crossings vary. Silt fencing would be very effective in the non-forested area. Broad-based dips that divert water off the road and away from streams are also very effective when the road climbs steadily, as it does through Drinking Water Watershed. Turbidity monitoring upstream and downstream of the road crossing will be used to determine if elevated turbidity levels are associated with the road. If an increase in turbidity is noted, a timber sale contract special provision

will stop traffic until BMPs can be evaluated and/or precipitation diminishes to the point where there is reasonable assurance that activities can resume and state water quality standards can be met in the stream. Log and rock haul may need to be limited to dryer periods of time. The turbidity monitoring plan is detailed in Chapter 2.

Logs would be yarded with equipment that meets the log suspension requirements to minimize soil disturbance. Storing the roads after silvicultural evaluations would also reduce long-term sediment production (Appendix D).

Alternative 4

The effects on domestic water would be the same as in Alternative 3.

Alternative 5

The effects on domestic water would be the same as in Alternative 3.

Alternative 6

The effects on domestic water would be the same as in Alternative 3.

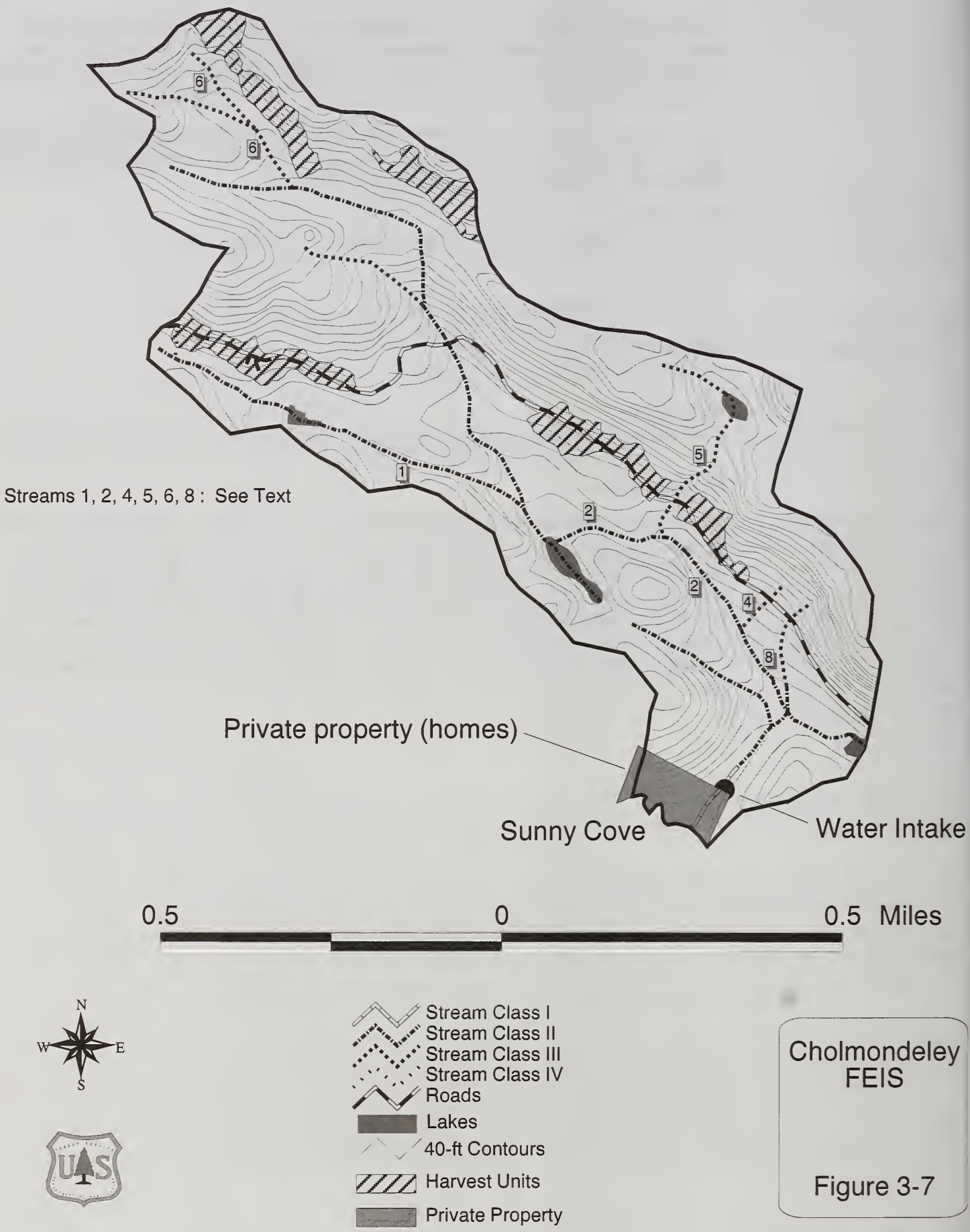
Alternative 7

The effects on domestic water would be similar to Alternative 2 under this alternative.

Mariculture

Most residents of Sunny Cove share in the operation of an oyster farm that is anchored in the south end of Sunny Cove. The business is in the developing stage and has modest production. The residents anticipate future expansion. The ID team believes most potentially negative effects to mariculture operations would be avoided by not building a road upslope of the operation. No road is planned for construction in these watersheds under any alternative. Thus, only minor effects to the mariculture operation would be possible from sediment in Sunny Creek (Watershed Report, project file).

Sunny Cove Drinking Water Watershed



Cholmondeley FEIS

Figure 3-7

Scenery

The residents of Sunny Cove enjoy the scenery and serenity surrounding the cove and their properties. They are concerned about the vast amount of logging that has occurred south of Cholmondeley Sound within their view. They believe the area around their homes is the only unlogged area remaining.

The foreground of the southwestern side of Sunny Cove is a uniformly forested ridge that climbs at a moderate slope and gradually steepens to a ridge about one half mile from the shoreline (Figure 3-3). The viewshed above the northeastern shore is a series of uniformly forested knobs and ridges that form distinct foreground and middle ground zones. The southwest side of Sunny Creek is allocated to the Old-growth Habitat LUD and has a VQO of Retention. The rest of the area is allocated Modified Landscape with VQOs of Partial Retention in the foreground and Modification in the middle ground. The viewshed is presently in a natural, unaltered condition except for several private residences and a small floating mariculture farm.

A long, predominantly steep-faced ridge characterizes the viewshed along the north shore of West Arm, Cholmondeley Sound. A distinct network of benches or plateaus separates the foreground from the middle ground. The foreground dominates the view, though there are clear views of middle ground ridges such as Barren Mountain. Though the foreground face is uniformly steep and forested, a few benches, knolls and drainages create some terrain diversity. The area is allocated Modified Landscape with a VQO of Partial Retention in the foreground and Modification in the middle ground. This viewshed is in a natural, unaltered condition.

We do not anticipate a floating camp on the north shore of Cholmondeley Sound due to more protected options in Dora Bay. Sunny Cove is not a suitable cove for a floating camp. Because of exposure at the LTF, we anticipate barges or rafts storage to occur on the south side of the sound, although there will be a designated area for log rafts in the tidelands permit that is adjacent to the LTF.

Alternative 1

Changes to the scenery of Sunny Cove would result only from natural disturbances.

Alternative 2

Harvest units 675-031, 675-032, and 674-032 would meet the VQO of Partial Retention (Recreation, Roadless Areas, Wild and Scenic Rivers, and Wilderness Report, project file). All non-merchantable trees would be left in Unit 675-031. This, coupled with the unit's small size (5 acres), reduces the impact from this unit. Units 674-032 and 675-032 include small group selection cuts on the upper part of each unit and Type-C clearcuts on the lower part that retain all non-merchantable trees (see Silviculture section).

The scattered units on the middle ground slopes above the northeast shore of Sunny Cove would meet the VQO of Modification. Individual trees and groups of trees would be left in Units 675-028 and 675-029 to address requirements for marten habitat, stream buffers, and soil protection. These trees also reduce the visual impacts of harvest. Islands of trees, retained along portions of the backlines of these units, would also soften the edge created by these backlines.

Seven units are located along the back of the foreground slopes above the north shore of West Arm, Cholmondeley Sound. These units would be helicopter yarded, leaving the unmerchantable trees standing in the units. Patch cuts or overstory removals are prescribed for the steeper, more sensitive portions of the units. The streams in Units 674-537 and 674-548 each have buffers to the slope break and additional buffers of up to 100 feet (Appendix B). These treatments would leave enough forested texture to meet the partial retention VQO (Recreation, Roadless Areas, Wild and Scenic Rivers, and Wilderness Report, project file).

Alternative 3

The visual effects of harvest would be the same as in Alternative 2, above. The LTF would be located east of the entrance to Sunny Cove. It would not be visible from the Sunny Cove Visual Priority Area or home sites on the north side of the cove. It would be visible from portions of the main body of Cholmondeley Sound. The development would consist of an operating area, ramp, access road, and dock. The operating area would be 100 feet by 100 feet. The ramp would be 40 to 60 feet wide (fill toe to fill toe) and 200 feet long. It would extend off one corner of the operating area to the low tide level. Parallel to this ramp would be a 25-foot wide (fill toe to fill toe) access road to the dock. An excavated rock wall would rise 10 to 20 feet above the operating area. The development would be partially hidden as it is tucked into a bight. The terrain on the west side of this location hides the LTF from areas west of Sunny Point. The LTF would be visible at an oblique angle from points east. A fringe of vegetation (20 x 75 feet) between the log transfer ramp and the boat dock access road would partially screen the operation area from direct views. This development would be well within the parameters of Maximum Modification VQO.

Alternative 4

The north shore of West Arm, Cholmondeley Sound would remain in a natural, unaltered condition since no units would be harvested here. The west shore of Sunny Cove would also remain in a natural condition due to the location of the mapped old-growth reserve. The scattered units on the middle ground slopes above the northeast shore of Sunny Cove would meet the VQO of Modification (Recreation, Roadless Areas, Wild and Scenic Rivers, and Wilderness Report, project file). Individual trees and groups of trees would be left in Units 675-028 and 675-029 to address requirements for marten habitat, stream buffers, and soil protection. These trees also reduce the visual impacts of harvest. Islands of trees, retained along portions of the backlines of these units, would soften the edge created by these backlines.

The visual impacts of the LTF would be the same as in Alternative 3.

Alternative 5

The visual effects of harvest would be the same as described in Alternative 2, above. In addition, the visual effects of the LTF would be the same as those described for Alternative 3.

Alternative 6

The impacts from this alternative would be the same as from Alternatives 3 and 5.

Alternative 7

There are no visual impacts in this bay just west of Sunny Cove.

Community Privacy and Security

Residents of Sunny Cove are concerned that a road located 0.25 mile from their homes would invite more use from surrounding communities. They believe ATV use would increase and they would be subjected to more noise, dust, and potential vandalism.

The IDT consulted with Forest Service law enforcement regarding what regulations apply to security concerns. Under 36 CFR 261.10, which will be applied for the Cholmondeley project, the following are prohibited: (d) Discharging a firearm or any other implement capable of taking human life, causing injury, or damaging property as follows:

(1) In or within 150 yards of a residence, building, campsite, developed recreation site or occupied area, or

(2) Across or on a National Forest System road or a body of water adjacent thereto, or in any manner or place whereby any person or property is exposed to injury or damage as a result in such discharge.

Table 3-4 describes our "best "guess" of duration of logging activities in the Sunny Cove area.

Table 3-4: Logging Activities Associated With Each Alternative Under Issue # 3

Alt #	LTF Use Sunny Cove	West Arm Bagboom	Road Construct. (seasons)	Cable Logging (seasons)	Heli Logging (seasons)	Tugs w/ Rafts or Bagbooms (seasons)	Crew / Supply Traffic (seasons)	Barges for Heli Yard to Water (seasons)
Alt 2	No	Yes	NA	NA	1-2	1-2	1-2	1
Alt 3	Yes	Yes	2-4	2-4	2-4	2-4	2-4	2-4
Alt 4	No	No	2-4	2-4	2-4	2-4	2-4	NA
Alt 5	Yes	Yes	3-4	3-4	3-4	3-4	3-4	NA
Alt 6	Yes	Yes	3-4	3-4	3-4	3-4	3-4	3-4
Alt 7	No	Yes	NA	NA	1-2	1-2	1-2	1-2

Two offerings near Sunny Cove could run concurrently due to difficult yarding methods (helicopter and cable) and different destinations of the logs (bagbooms versus LTF).

Alternative 1

Access would remain at the current level and few changes to the solitude and peacefulness of the local surroundings would be anticipated.

Alternative 2

Direct effects of this alternative would include increased noise from chainsaws and helicopters. Indirect effects, such as changes in recreation use, would be unlikely since no roads would be constructed under this alternative. The duration of harvest

operations would be one to two seasons under this alternative because of the helicopter yarding.

Alternative 3

Direct effects of timber harvest under this alternative would include noise from road construction, cable and helicopter yarding and general industrial noise at the LTF. The noise would be more distant from the community because the logs would be yarded to roads away from Sunny Cove or to saltwater in West Arm. The duration of harvest operations would likely be two to four seasons. The roads would create more inland travel routes for other recreation activities though the roads would be closed to motorized use. The roads would be closed to motorized use by blocking them with boulders, removing culverts and bridges, or otherwise making them impassable. This closure to motorized uses would be enforced by a CFR closure order. The road system would likely be used by hikers and both recreational and subsistence hunters from Ketchikan and Prince of Wales Island, respectively. Most recreation use and associated impacts would be concentrated along saltwater beaches, the LTF, and road corridors.

Alternative 4

The direct and indirect effects of this alternative would be the same as Alternative 3. The lower harvest level would reduce the duration of operations by one year.

Alternative 5

The direct and indirect effects of this alternative would be the same as Alternative 3.

Alternative 6

The direct and indirect effects of this alternative would be the same as Alternative 3, except the duration of harvest would be three to four seasons.

Alternative 7

The direct and indirect effects of this alternative would be the least of all alternatives except the duration of harvest would be one to two seasons.

Subsistence

Subsistence hunters of Sunny Cove believe a change in access to the area could negatively affect their subsistence use by bringing more hunters to the area.

Sunny Cove residents live a subsistence life-style, with hunting, fishing, and gathering being typical activities. Bear are hunted around the Sunny Cove estuary and beaver are trapped from the streams. Deer are hunted over the entire Sunny Creek drainage. Ketchikan is not a subsistence community and shows little use of the area for sport hunting. Much subsistence hunting/gathering is done through saltwater-based activities in areas adjacent to the project.

Alternative 1

Hunting use, especially from outside the area, would remain at the current low level.

Alternative 2
We expect no change in the subsistence use of this area (Subsistence Report, project file). No additional roads or access points would be constructed. Competition among subsistence hunters would not change since changes in access not would occur.

Alternative 3
Additional access to the area would be available at the LTF. There could be additional hunting pressure in the area of the LTF and from the roads. We anticipate some competition between subsistence users and some competition from Ketchikan hunters (Subsistence Report, project file).

Alternative 4
The direct and indirect effects of this alternative would be same as Alternative 3.

Alternative 5
The direct and indirect effects of this alternative would be same as Alternative 3.

Alternative 6
The direct and indirect effects of this alternative would be the same as Alternative 3.

Alternative 7
This alternative drops the Sunny Cove units and associated roads. The West Arm units would be helicopter yarded. Hunting/gathering should remain at current levels. Subsistence is covered in more detail under the subsistence section later in this chapter.

Wind

Winds in Sunny Cove tend to come from the southeast. Sunny Cove residents are concerned timber harvest could change wind patterns and affect the safety of their anchorage and the stability of the stream buffers.

Wind patterns are very unpredictable. Past observances and general topography in Sunny Cove have helped develop subjective ratings for risk hazard of windthrow following harvest immediately around individual units. Between the various alternatives, 0 to 30 percent of the units near Sunny Cove fall in the high or medium-high risk factor. Residents of Sunny Cove expect increases in wind from the southwest and west if units are harvested along the West Arm. One-thousand foot beach buffers will provide protection around the anchorages and facilities. Silvicultural systems that leave structure standing (reserves trees) will reduce wind funneling effects. The greater the openings in the canopy as the result of harvesting or road building, the greater the potential for funneling and increased windthrow. No road building south/west of Sunny Creek will also help by lessening the amount of canopy opened. Alternative 4, which leaves West Arm units unharvested, would experience no additional disturbance patterns due to harvest. Wind patterns due to past harvest on private lands to the south of Cholmondeley Sound have already produced their impacts and would probably not change as the result of any harvest. Alternatives 2 and 7 would have the least potential for windthrow of the alternatives with harvest planned in the Sunny Cove area due to their helicopter yarding and lack of road building.

Considering the distance to the units and mitigation measures in place for all alternatives, no increased wind problems are anticipated near salt water in Sunny Cove.

However, windthrow in buffer strips and around unit margins is common. Prescribed buffers should ensure the necessary standing structure for water quality protection. Careful salvage of windthrow, if it occurs in the domestic watershed, will be monitored by soils scientists and hydrologists for protection of water quality. Unit prescriptions and subsequent unit layout work consider wind patterns during their processes. We do not anticipate major increased wind problems that would affect water quality in the Sunny Cove residential area. Refer to the silviculture report in the planning record and unit cards in Appendix 1 of this EIS for individual unit risk ratings.

Alternative 1

No changes to wind patterns and velocities would occur beyond what has already occurred as a result of timber harvest on the south side of Cholmondeley. The safety of the anchorage would remain at its current level.

Alternative 2

More trees would be left in the harvest units and along streams than in the other action alternatives, except for Alternative 7. Forest canopy openings would be kept relatively small, and no roads would be built. Some windthrow may occur but it should be limited to individual trees. A 1,000-foot-wide buffer of trees would retained around the cove will maintain protection of the anchorage (Silviculture Report, project file).

Alternative 3

We expect the wind effects of this alternative to be similar to Alternative 2. A road would be built north of Sunny Cove and the units associated with it would be logged using ground-based systems. Thus, less structure would be left in these units. Since these units are north of the cove and the winds tend to be from the southeast, they should not contribute to any wind effects on the anchorage. The units along West Arm would be yarded using helicopters as in Alternative 2 and would likely have the same effects. The effects of windthrow on water quality are discussed under Domestic Water, above.

Alternative 4

The units along West Arm would not be harvested. The effects of this alternative would be similar to Alternative 1 since no openings are created between the community and the prevailing winds. There could be some windthrow in the units west and north of Sunny Cove but they would have no effect on the anchorage.

Alternative 5

The effects of this alternative would be the same as in Alternative 3.

Alternative 6

The effects of this alternative would be the same as in Alternative 3.

Alternative 7

There should be no wind effects to Sunny Cove residents.

Issue 4: Timber Sale Economics and Supply

This section analyzes the economic viability of the proposed timber sales. The project area contains large areas of steep terrain that are difficult to access. The cost of logging these areas and applying more difficult silviculture prescriptions to address resource concerns may reduce the economic viability of the proposal. There is also

concern about the amount of timber available for sale from national forests and how a stable supply affects local employment and revenues. See Appendix A and the 10-year sale plan in the planning record for a more in depth explanation of why and how this project fits into the Tongass timber supply.

NIC I and NIC II

The allowable sale quantity (ASQ) is divided into two non-interchangeable components (NICs), based on economic factors. Timber harvest is easiest and most economical on NIC I lands. The NIC II lands are more difficult to harvest or access and therefore, less economical. The Forest Plan assumed about 80 percent of the ASQ would come from NIC I lands and the remaining 20 percent from NIC II lands (Forest Plan ROD, page 8). The volume of timber harvested from the two NIC components is tracked to monitor Forest Plan assumptions.

On the Cholmondeley Project Area, 38 percent of the commercial forest land (CFL) is classified as NIC I and 62 percent as NIC II. These percentages indicate that the project area is difficult to harvest and the financial efficiency of harvest may be low. Both NIC I and NIC II exist within individual harvest units. In Alternatives 2, 3, 5, and 6, approximately 29 percent of the proposed harvest area is on NIC I lands and the remaining 71 percent is on NIC II lands. Alternative 4 harvests only 16 percent in more economical NIC I land, while Alternative 7 harvests approximately 53 percent in NIC I. Table 3-5 displays the amount of NIC I and NIC II lands that would be harvested in Saltery Cove, Clover Bay, Sunny Cove, and the entire project area for each alternative.

Alternatives 2, 3, 5, and 6 harvest roughly the same acres and, therefore, harvest approximately the same percentages of NIC I and NIC II. Although Alternative 4 calculates to high financial efficiency using other indicators, it still harvests from the highest percentage of difficult ground. Road access to the majority of units helps lower costs. Alternative 7 harvests a high percentage from easier ground. The lack of road access forced by local issues and Forest Plan Standards and Guidelines could not have been predicted; thus, the original NIC call appears to be more economical than calculations show.

The terrain around Sunny Cove and Saltery Cove is more difficult to harvest than the terrain surrounding Clover Bay. Eighteen units are at financial risk because of their relatively low volume and high yarding costs. Eleven of these units are deferred in Alternative 4. The area in these units equates to 305 acres.

Table 3-5: Harvest in NIC I and NIC II by Alternative and Locale

	NIC	Existing Area (%)	Percent Harvest Area Alternative 2	3	4	5	6	7
Saltery Cove	I	28	26	26	26	26	27	3
	II	72	74	74	74	74	73	97
Clover Bay	I	46	53	52	19	53	53	70
	II	54	47	48	81	47	47	30
Sunny Cove	I	33	14	14	10	14	14	54
	II	67	86	86	90	86	86	46
Project Area	I	38	29	29	16	29	29	53
	II	62	71	71	84	71	71	47

Timber Supply and Market Demand

Determining market demand is a complex process. Detailed explanations of the rationale for considering timber harvest in the Cholmondeley Project Area and market demand for wood products is located in Appendix A of this document. More information can also be found in the Forest Plan FEIS, Part 1 (pages 3-248 to 3-307) to which this document is tiered.

The Tongass National Forest makes two determinations on volume to be offered. The first is a determination on volume to be offered for the current year (annual market demand). The annual market demand is analogous to assessing industry performance in the short-term. In the short-run a firm will make use of its existing equipment to maximize profits or minimize losses. The general approach is to consider the timber requirements of the region's sawmills at different levels of operation and under different assumptions about market conditions and technical processing capability. These assumptions provide a basis for estimating the volume of timber likely to be processed by the industry as a whole in any given year. Timber inventory requirements are acknowledged and estimated in a related calculation. The volume of timber likely to be purchased is equal to the volume needed to make up any inventory shortfall in addition to the volume likely to be harvested in the coming year. The document, *Evaluating the Demand for Tongass Timber* (Morse, 1998), forms the basis for how these estimates were developed. The document, *Tongass National Forest Timber Sale Procedures* (Morse, 2000), documents the process used to determine the current fiscal year offer. The Regional Office annually updates actual estimates for each year. This estimate is what the Tongass plans to offer for the current year of the Ten Year Timber Sale Schedule pending sufficient funding to do so. Final procedures can be located in *Responding to the Market Demand for Tongass Timber* (Morse, 2000).

Based on the analysis procedure documented in the *Tongass Timber Sale Procedures, Fiscal Year 2002*, the Tongass National Forest offering required to meet timber supply objectives is 146 mmbf. The offer planned will be a combination of new, previously offered, and previously offered and reconfigured timber sales. Both standing timber and salvage will be components of the program. Offerings will consist of those

targeted for Small Business qualified firms as well as a portion of the volume being made available for open market.

The second estimate the Tongass National Forest makes regarding determinations on volume to be offered is the long-term offer. The basis for this estimate is the long-range timber market projections documented in *Timber Products Output and Timber Harvest in Alaska: Projections for FY97-10* (Brooks and Haynes, 1997).

Many variables can increase the cost of timber sale offerings, and may carry significant economic risk for potential purchasers. High cost could be incurred because of road construction, helicopter logging, amount of timber volume and value of timber being removed. Market stumpage values must be sufficient to cover this cost and offer a profit for potential purchasers. The timber economics for the project have the potential to affect the timber supply to the forest products industry. It may also have an affect on employment in the local communities of Southeast Alaska.

Economic deferral (deferring a timber sale for economic reasons) is dependent on changing conditions that including log prices, the cost of accessing harvest units (roads), and the efficiency of harvest systems (including yarding and hauling costs).

In order to maintain a stable timber sale program, we need to provide a continuous flow of timber to the timber industry. The Forest Service has developed a timber sale program to respond to this need. The proposed Cholmondeley Timber Sale is a necessary component of this program, and the sale is identified on the 10-year Timber Sale Plan.

Community Economic Base

Approximately 80 percent of Southeast Alaska is within the Tongass National Forest, which extends 500 miles from Ketchikan in the southeast to Yakutat in the northwest. With little private land available, the region is sparsely settled. Approximately 74,000 people live in 33 towns and villages located in and around the Forest. The communities of Southeast Alaska depend on the Tongass National Forest to provide the foundation for natural resource-based industries, which include wood products, commercial fishing and fish processing, recreation, tourism, mining and mineral development. Many residents also depend heavily on subsistence hunting and fishing to meet their basic needs. There is very little private land in the region to provide these resources. Appropriate management of the Tongass' natural resources is, therefore, extremely important for local communities and the overall regional economy.

One aspect of the local project area economy, lodge business, was previously discussed in detail under issues 1-3. Subsistence was also discussed under these issues and later in the subsistence section.

The Timber Industry

The forest products industry has been an important part of the economy of Southeast Alaska since the 1950s. Recent forest products employment data are presented in Table 3-6. From 1987 through 1996, the forest products industry provided direct employment for an average of 2,791 workers. Indirect employment, which includes related service activities, such as transportation, marketing, and equipment sales and

maintenance, provided an additional 2,014 jobs. Direct and indirect employment during this period peaked in 1990 with totals of 3,543 and 2,570 jobs, respectively.

Employment has dropped recently, primarily due to lower market conditions and the closure of the pulp mill in Ketchikan 1997. With that closure, employment in this category has been reduced by approximately 520 jobs.

Table 3-6: Forest Products Industry Employment in Southeast Alaska 1991 to 2000

Employment Type	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Logging	1,554	1,415	1,344	1,177	1,185	1,157	1,049	889	824	711
Saw Mill	604	538	447	515	301	230	184	284	303	280
Pulp Mill	911	910	859	533	516	524	318	96	63	2
Total Direct Job years	**3,069**	**2,863**	**2,650**	**2,225**	**2,002**	**1,911**	**1,551**	**1,269**	**1,190**	**993**

Source: Forest Plan Final EIS, 1997; USDA Forest Service, 1998n, and AK Dept. of Labor 2000

Employment and income generated by timber harvest are estimated using employment data from Southeast Alaska and correlation between timber volume, jobs, and income (Forest Plan, page 3-480). Employment factors used in this analysis were 1.95 logging jobs/MMBF and 3.33 sawmill jobs/MMBF. All timber sales appraised utility grade logs for optional removal. Therefore, the employment effects for each alternative are estimated as the sum of logging and sawmill jobs per MMBF multiplied by the planned harvest volume (e.g. Alternative 2: (1.95+3.33) x 35.6 = 188 employees). These estimates represent the total direct employment and income generated over the period of activities (one to five years from road building to timber harvest activity) in the project area. We used the average earning estimate of $47,437 (adjusted to 1998 dollars) as direct earnings generated in Southeast Alaska (Forest Plan, page 3-479).

Using job multipliers from the Forest Plan, Alternatives 2 and 5 provide the most direct jobs at 188 apiece, followed by Alternatives 3 and 6 with 179 jobs. Alternative 4 provides 125, followed by Alternative 7 with 41 (table 3-7).

These numbers are to be used as a relative comparison between alternatives. They do not include analysis of indirect jobs affected through services in communities or jobs involved with the actual shipping or ship loading of the products to the foreign markets. The incomes generated also do not include rebates given to manufacturers for domestically processing cedar products. A higher harvest level results in more timber harvest-related jobs and earnings. Additional secondary impacts would also occur in supplier/service communities for logging and sawmill operations, as with all industries.

The ID Team did not assess timber harvest-related employment and earnings that accrue directly to communities in and around the project area. Residents in small communities tend to take advantage of new jobs available in their vicinity. We expect that local people would fill some of the jobs or support services. In general, timber harvest-related jobs tend to be seasonal (April through October), and last for a limited

time (one to five years). However, the figures are calculated in job-years (employment for one year). The offerings may be an important stable source of wood supply for the existing mills and logging operations and help to maintain the capital investment already in place in several communities.

Table 3-7: Wood Products Related Employment and Earnings By Issue Area

	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7
Saltery Cove							
Volume (mmbf)	0	8.1	6.9	8.1	8.1	6.4	1.6
# of Jobs	0	43	36	43	43	34	8
Earnings ($mm)	0	2.04	1.71	2.04	2.04	1.61	.38
Clover Bay							
Volume (mmbf)	0	14.2	13.8	7.4	14.2	14.2	2.3
# of Jobs	0	75	73	39	75	75	12
Earnings ($mm)	0	3.56	3.46	1.85	3.56	3.56	.57
Sunny Cove							
Volume (mmbf)	0	13.3	13.3	8.2	13.3	13.3	3.9
# of Jobs	0	70	70	43	70	70	21
Earnings ($mm)	0	3.32	3.32	2.04	3.32	3.32	1.00
Total							
Volume (mmbf)**	0	35.6	34.0	23.7	35.6	33.9	7.8
# of Jobs	0	188	179	125	188	179	41
Earnings $mm	0	8.92	8.49	5.93	8.92	8.49	1.95

** Includes ROW volume

Cedar Export Effects

If we were to break down the cedar component and assume some portion of cedar will be approved for the export market, we would anticipate a reduction in number of jobs created per MBF and per alternative. Historically, Tongass-wide about 20 percent of annual harvest is of the cedar component. The Cholmondeley Project Area has a relatively high percentage of cedar and, according to the Superstand program, about 60% of the harvest within units will be cedar. Prescriptions will favor reserving cedar trees. Therefore, it is assumed that 10-20 percent will be reserved as standing volume resulting in approximately 45 percent of the cut volume being cedar. Since the pulp mill closure, about 50 percent of the cedar harvest has been determined to be surplus to the local market and has been allowed to be exported. This means that about 23 percent of the total volume would go to the domestic cedar market, 23 percent of the total volume would go to the export cedar market, and 55 percent of the total volume would go to the non-cedar domestic market. This could result in a reduction of about 23% in domestic jobs and income across all alternatives. See the "Cedar Harvest" section in this chapter for a more in-depth explanation of the markets and cedar predictions.

NEAT Analysis

Region 10, in collaboration with the Tongass National Forest, developed a NEPA Economic Analysis Tool (NEAT). The NEAT is based on the Transactional Evidence

Appraisal (TEA) System, and is used to determine the financial efficiency and relative ranking of alternatives during timber sale planning. Following Forest direction (April 2002), the NEAT program was used to analyze and rank the action alternatives for the project. The result of the NEAT analysis was compared to the ranking of alternatives from the project's original financial efficiency analysis. NEAT was also run with several options across all alternatives, one for domestic processing with 6 inch utilization standards, and another with cedar export and 10 inch utilization standards. The relative ranking of the alternatives was similar for both the original financial efficiency analysis and the domestic processing option of the NEAT analysis. In the export market analysis, Alternatives 4 and 5 switched positions. However, they have virtually the same expected bid value. The NEAT analysis did not reveal significant new economic information. Comparison with the NEAT program was discussed above under the employment and income section and below under the financial efficiency and public investment analyses also.

Comparison of the NEAT Analysis for Employment and Income

The NEAT program runs also produced data for employment and income for comparison to the above analysis. Numbers of jobs generated by the alternatives were generally comparable to the analysis above. A two to nine percent difference was found in the figures. The order of ranking also changed slightly between alternatives from 5, 2, 6, 3, 4, and 7 in the above analysis to 5, 6, 3, 2, 4 and 7 in NEAT.

A two-to-fourteen percent difference was found in the figures comparing income across the analyses. The order of ranking changed slightly between alternatives from 5, 2, 6, 3, 4, and 7 above to 5, 6, 3, 2, 4 and 7.

Differences could be found in that the previous analysis does not take into account employment differences related to different logging systems. Detailed numbers can be found in the planning record and later in this chapter.

Sale Opportunities (short-term and long-term)

The timber volumes proposed in the alternatives would be offered in more than one sale. Proposed names include Cher, Sunny, South Monie, North Monie, and Saltery. Sales would range in size from 5 to 8 MMBF. The larger sales are relatively isolated with no existing roads. The estimated number of potential sales is between three and five depending on the selected alternative (Table 3-8). Alternatives with higher volumes have more flexibility to offer smaller sales. However, Alternative 3 would be more economical to offer in one large sale for all the volume north of Clover Bay (15.6 MMBF) not reflected in the table below, due to the economics of helicopter-yarded sales.

Table 3-8: Numbers and Sizes of Sales by Alternative

	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7
Maximum Number of Sales	5	5	3	5	5	3
Smallest Offering (MMBF)	5.1	5.1	7.4	5.1	5.1	1.6
Largest Offering	8.2	8.2	8.2	8.2	8.2	3.9
Average Sale Size	7.1	6.8	7.9	7.1	6.8	2.6

*Includes ROW

There may be opportunities for micro-sales (less than one million board feet) in the future, should salvage of blowdown be necessary. However, small sales salvage opportunities would be very limited in alternatives that propose no road construction. The cost of salvaging windthrown timber with helicopter, with no access or LTF, would be very costly.

Second-growth stands would supply productive timber stands for the next rotation.

Payments to the State of Alaska

Prior to 2000, in states with national forests, 25 percent of the returns to the US Treasury from revenue producing Forest Service activities such as timber sales, were returned to each state for distribution back to counties (or in Alaska, boroughs) having acreage within a national forest. Those payments were called the "25 percent fund payments" and were dedicated by law to roads and schools. In October 2000, the *Secure Rural Schools and Community Self Determination Act of 2000* was enacted to stabilize federal payments to states, in response to declining federal receipts.

For fiscal years 2001 through 2006 under the new legislation, Alaska boroughs and communities have elected to receive a full payment amount rather than 25 percent of receipts. The full payment amount is the average of highest three payments made to the state during the 14 year period between 1986 and 1999. These annual full payment amounts would be primarily dedicated to roads and schools, with provisions for special project funding under certain conditions. Under the full payment approach, Forest Service payments to the State of Alaska during the 2001 to 2006 period would not be linked to annual Forest Service revenue, rather they would be based on the high three year historic average. The difference in revenues among the alternatives considered in the EIS would have no effect on the payments boroughs receive from 2001 through 2006.

The following chart displays payments made to the state of Alaska from 1986 – 2001.

Payments to Alaska 1986 – 2001 (Amounts in $1000's)	
1986	545.5
1987	.0
1988	410.2
1989	5,106.0
1990	9,057.1
1991	9,298.9
1992	3,346.0
1993	3,901.9
1994	8,782.0
1995	7,600.5
1996	5,905.5
1997	1,186.9
1998	1,820.1
1999	1,990.4
2000	2,303.7
2001*	9,019.7
* Represents legislated payment system as of October 2000	

Timber Financial Efficiency Analysis By Alternative

One way to compare the effects of the different alternatives is to conduct a financial efficiency analysis. Financial efficiency analysis is a comparison of those costs and benefits that can be quantified in terms of actual dollars spent or received within the project area. When considering quantitative issues, financial efficiency analysis offers a consistent measure in dollars for comparison of alternatives. This type of analysis does not account for non-market benefits, opportunity costs, individual values, or other values, benefits, and costs that are not easily quantifiable, such as recreation. This is not to imply that such values are not significant or important, but to recognize that non-market values are difficult to represent by appropriate dollar figures. Therefore, financial efficiency should not be viewed as a complete answer but as one tool that decision makers use to gain information about resources, alternatives, and trade-offs between costs and benefits.

Although individual timber harvest units may or may not be economical to harvest by themselves, the management of less productive land, or land containing a high percentage of defective timber, will help to increase future timber yields. The harvest of units with higher returns will help compensate for those less economical.

A preliminary appraisal was conducted for the action alternatives (Table 3-9, Harvest Economic Efficiency Analysis) using the NEPA Economic Analysis Tool (NEAT). The analysis compares estimated costs and determines an estimate of net stumpage values for high and low market conditions. Alternative 1 is not displayed because there is no harvest associated with it.

Harvest volumes were estimated for sawlogs that would be harvested. Due to market conditions, utility log removal is not required during harvest operations. These volumes are based on field stand exam data, and the estimates are expected to vary from actual cruise volumes used later for the timber sale contract.

The expected bid rate for the last 15 quarters was used to display the action alternative rankings based on the alternatives' estimated timber quantity, quality and logging efficiency. These market scenarios are used to display the cyclical nature of timber markets. They are not intended to display a final appraised stumpage value.

- Before any National Forest timber is sold, it is appraised to estimate the material's fair market value. When a sale is offered, it is offered competitively and the contract is normally awarded to the firm offering the highest bid. These requirements have been imposed to help ensure that the government is justly compensated for any timber it sells. For the Cholmondeley Timber Sale (made up of five different anticipated sales), stumpage values were calculated for the action alternatives by including estimated stump to truck, transportation, logging overhead and road construction costs. The stumpage values do not include bid premiums that could result from competitive bidding for the timber when sold.

Table 3-9: Harvest Economic Efficiency Analysis - Timber Sale Values and Costs to an Operator of Average Efficiency with 6 inch Top Diameter Standards and Domestic Processing

	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6	Alt 7
Species	**Volume(ccf)**	**Volume(ccf)**	**Volume(ccf)**	**Volume(ccf)**	**Volume(ccf)**	**Volume(ccf)**
Sitka Spruce	2782	2847	2037	3183	3023	619
Hemlock	31527	32005	22679	35832	34253	7100
Western Red Cedar	21449	9803	14481	24639	23464	5115
Alaska Yellow Cedar	9306	22105	6029	10867	10248	2307
Total CCF	65,064	66,760	45,226	74,521	70,988	15,141
Logging Cost per CCF	$257.55	$237.02	$186.56	$191.72	$220.90	$218.62
Expected Bid Value	($7,323,042)	($6,093,178)	($2,024,657)	($3,442,146)	($5,364,037)	($1,071,181)
***Advertised Rate/CCF**	($112.55)	($91.27)	($44.77)	($46.19)	($75.56)	($70.75)

[1] ( ) indicates negative value
Source: Lawton, NEAT, 2002
* =stumpage rate

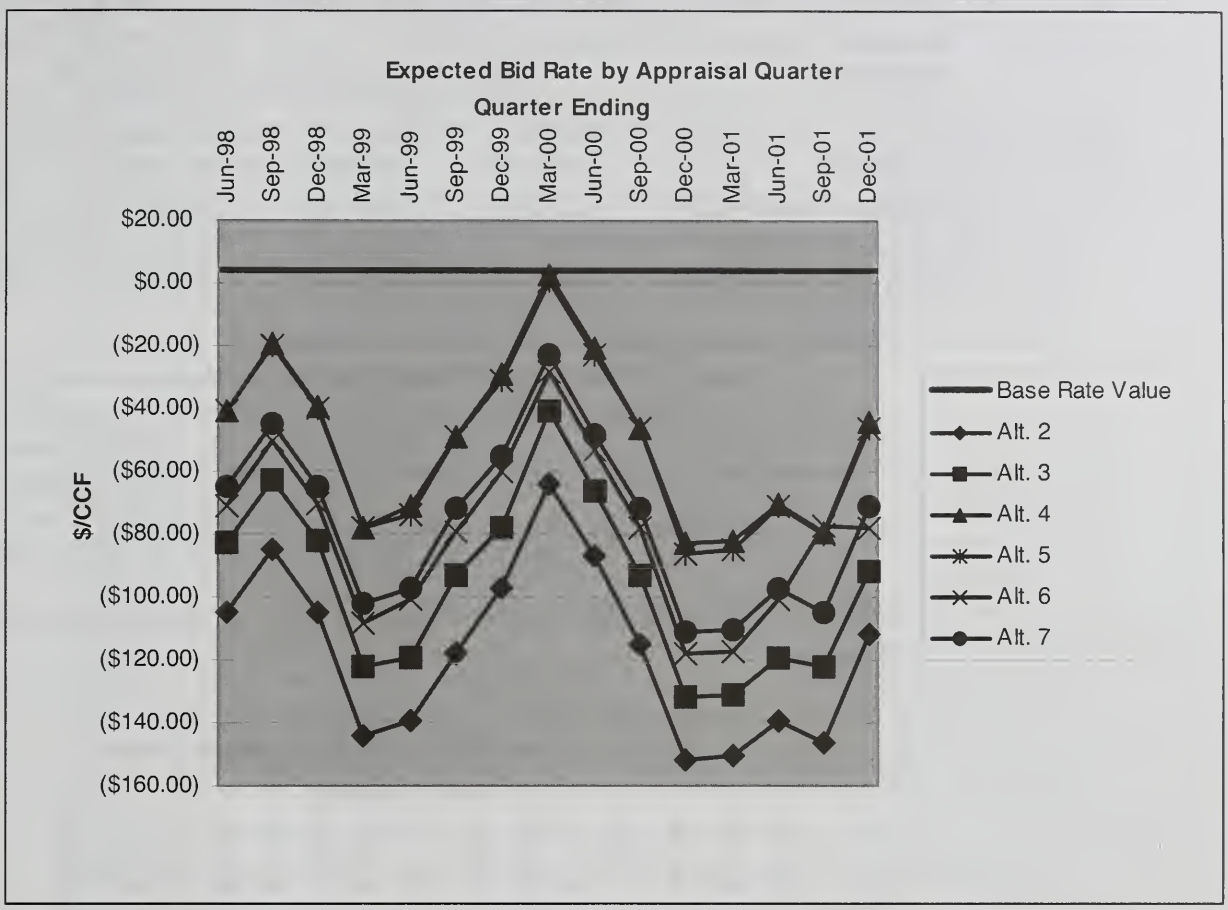
Financial Efficiency Summary

The financial efficiency analysis for all the alternatives produced an expected sale value of between $(1,071,181) and $(7,323,042) for the current market condition. The expected advertised net stumpage rate would be between $(44.77) and $(112.55) per CCF. Several reasons exist for the deficit value. Some is due to the high logging costs associated with helicopter yarding coupled with the current extremely low market condition. The greatest amounts of helicopter logging occur in Alternatives 2 and 3. However, all alternatives contain several groups of uneconomical units. Units 674-

537, -538, -549, -551, -581, and 615-025 may be uneconomical to harvest in low-market conditions. These units require helicopter yarding to prevent damage to the residual stand and meet resource objectives. The area north of Monie Lake, Units 616-018, -019, -022, -023, and –024, would be uneconomical because the units require long roads to reach them and are relatively low volume per acre. Using helicopters to yard logs becomes very expensive if the average yarding distance (AYD) is near or exceeds 8,800 feet. Depending on the alternative, Units 614- 002, -005, -034a, and -034b; 616-013, -016, -021, and –275; 675-030, -033, and -037; and 676-462, -472, -484, and -500 would be at risk for this reason. See Table 3-11 for the breakdown of helicopter units by cost category. In this analysis and following ROD, the Forest Service hope to "NEPA clear" all proposed units under the selected alternative then let the market determine at the time of sale the final configuration of units.

The estimated harvest volumes, expected value, costs and net stumpage values projected in this document at this time are not definitive figures. These estimates are useful for comparing the alternatives but should not be used for determining actual sale volume costs or values. Merchantable timber within units and any road right-of-way located on National Forest System lands will be cruised to determine the quantity, quality and value of timber for the contract under which that volume of timber is offered. The final sale appraisal will include current quarter selling values, current cost information and a normal profit and risk allowance to determine the minimum advertised stumpage value at the time of offering. It should be noted that base rates to cover cost of essential reforestation and a small return to the National Treasury would be the minimum rates advertised for sales appraised as deficit. Competitive bidding will determine the actual value.

Figure 3-8: Expected Bid Rate by Appraisal Quarter Domestic Option with 6ì Utilization Standards



Source: Lawton, 2002
Alternatives 4 and 5 are displayed as essentially the same line at the top of the chart.

The above chart displays Alternatives 2 through 7 with respect to the expected bid for the last 15 quarters beginning with June of 1998. The curve reflects the market conditions over the past 3 years. The bold black line near the top of the chart depicts base rates, which are the minimal rates the Forest Service will accept for timber. Rates below this line are not expected to sell under market conditions.

Market fluctuations may vary enough to produce a positive sale in future years. Market swings could show numbers in the range of minus $30 / CCF today and still reach a positive stumpage value at time of sale.

Opportunities to Improve Economics

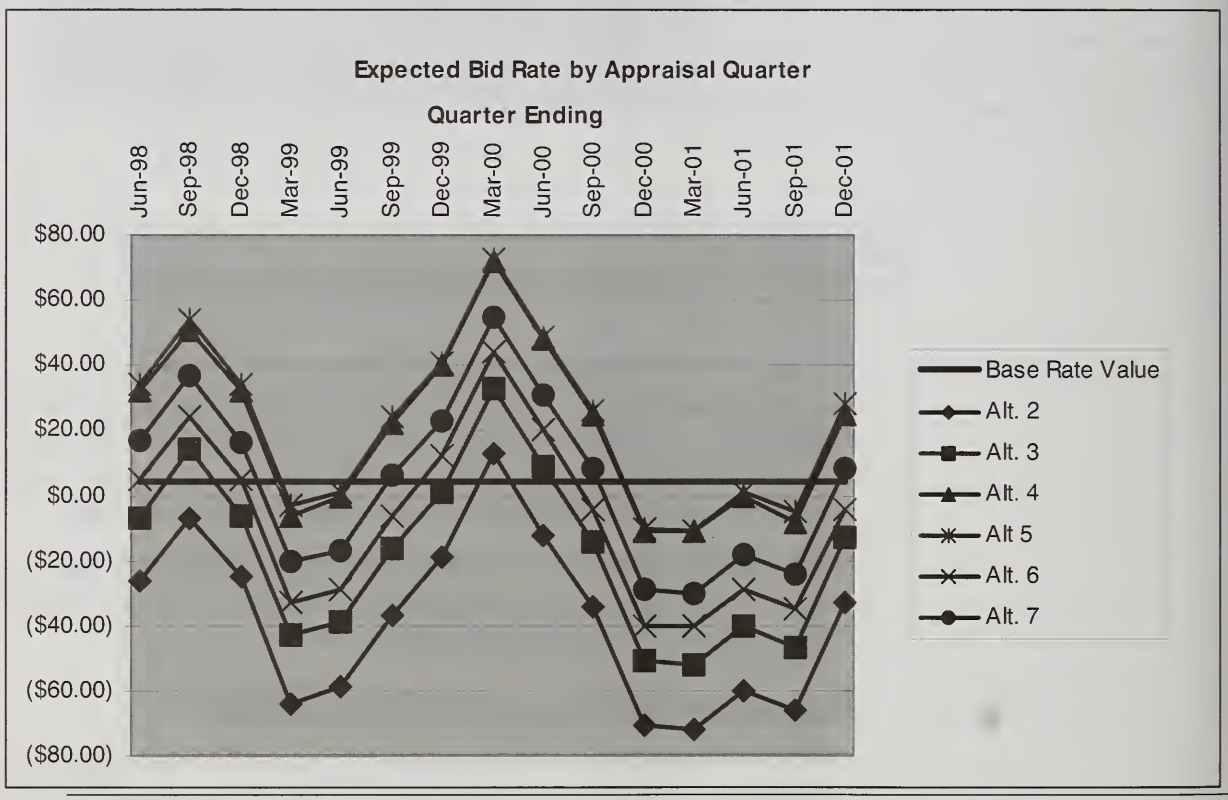
Different management standards could be applied to any alternative to improve the economics. For example, the expected value was increased for an alternative appraised to a 12-inch top diameter and/or with export of the western redcedar. NEAT was also run under this scenario and some positive bid values and advertised rates resulted in Alternatives 4, 5, and 7. See Table 3-10 below.

Table 3-10: Harvest Economic Efficiency Analysis - Timber Sale Values and Costs to an Average Operator of Average Efficiency - 10-inch Top Diameter Standards with Redcedar Exported

	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6	Alt 7
Total CCF	65,064	66,760	45,226	74,521	70,988	15,140
Logging Cost per CCF	$258.08	238.96	193.88	198.37	227.70	220.44
Expected Bid Value	($1,843,072)	($750,491)	$981,026	$1,683,322	$(161,523)	$107,646
Advertised Rate/CCF	($33.61)	($13.38)	$25.64	$26.87	$(2.70)	$8.47

Alternative 5 has the highest total bid value, slightly over Alternatives 4, although they closely parallel one another at the top of the chart. Alternative 7 also has a positive bid value. Alternatives 6, 3, and 2 were all negative in that option. Helicopter yarding costs had large impacts on the bid value. The stumpage rates (advertised rates) were highest for Alternative 5 again followed by Alternative 4 and 7 (all three positive). Alternatives 6, 3, and 2 were, again, all negative and in that same order.

Figure 3-9: Expected Bid Rate by Appraisal Quarter Cedar Export with 10î Utilization Standards



Source: Lawton, 2002
Alternatives 4 and 5 are displayed as essentially the same line at the top of the chart.

The Cholmondeley Timber Sale would have short-term and long-term effects to supply and demand of wood. There is the opportunity with this project to provide up to five timber sales within a 4-to-5 year period.

Public Investment Analysis

Public investment analysis of each alternative compares the value of the timber with the cost of preparing the timber sale. The average Region 10 budget allocation costs and management expenses are subtracted from net stumpage revenues to determine net value. The costs and management expenses include environmental analysis, sale preparation, sale administration and engineering support. Forest Service cost per hundred cubic feet (CCF) is based on the Region 10 average budget allocation of $20.50/CCF for analysis, $11.50/CCF for sale preparation, $4.50/CCF for sale administration and $14.00/CCF for engineering support.

Environmental analysis costs include field inventory and the analysis of data, public involvement and the preparation of a document that satisfies the requirements of the National Environmental Policy Act. The timeframe is about 2-5 years and involves many resource specialists. Although it is based on timber volume the cost fluctuates more with the amount of area to be examined and the accessibility of that area. The Cholmondeley Project Area is located on Prince of Wales Island and is not accessible by road. A Forest Service barge has been located near the project area to house district employees. Working from a field camp greatly reduces the cost of transportation to the area compared to other project areas. Most other areas are accessible only by helicopter, floatplane, or boat with no overnight facilities. The environmental analysis cost is constant and applies to all alternatives including the No-action Alternative.

Unit layout and cruising costs increase significantly when partial harvest is prescribed compared to clearcutting. The Alternatives-to-Clearcutting Research Study on Kupreanof Island required about eight times more person-days to prepare a unit that involved marking individual trees throughout the unit compared to a clearcut unit. Designation of 2-acre patches took about four times longer than a clearcut. Accessibility to the units is another major cost factor. Helicopter access and steeper terrain increase sale preparation costs compared to areas with existing road access.

Using these cost factors for total preparation cost, Alternatives 5 and 6 are the most expensive followed by Alternatives 3, 2, 4, and 7 respectively. Higher costs are generally related to the amount of helicopter yarding.

Sale administration costs are higher when helicopter logging is involved because of the increased cost of accessing the timber harvest for administration. Scattered and smaller harvest areas are more costly to visit because of the higher sale administration costs for helicopter yarding,

Financial Efficiency by Sale

This analysis by proposed sale area was not run through the NEAT program. It would have taken many more runs to accomplish approximately the same relative numbers that appear below.

The volume harvested under each alternative would be combined into smaller sale areas (Figure 3-8). Helicopter yarding can change the economic viability of a timber

sale. As mentioned previously, the appraisal handbook was used for direction, along with cost collection figures in 1999 and 2000. Helicopter units were separated into logical groupings based on yarding distances. These groupings provide investment direction and display trade-offs associated with specific harvest units. This method uses cost collection figures from Region 10 average helicopter yarding costs as its foundation. Costs at average yarding distances are listed below.

- **2,200 feet AYD** = $337/MBF
- **4,400 feet AYD** = $415/MBF
- **6,600 feet AYD** = $494/MBF
- **8,800 feet AYD** = $572/MBF
- **10,000 feet AYD** = $615/MBF

Table 3-11: Helicopter Units by MBF Cost Category for Each Alternative

Alternative	2,200 feet AYD	4,400 feet AYD	6,600 feet AYD	8,800 feet AYD	> 8,800 feet AYD
2	615-025 616-010, -011, -022, -023, -024, -123 617-009 674-032, -537, -548, -549, -550, -551, -583 676-592	614-001a, -001b, -002 616-007, -018	616-008, -012, -017, -019 675-028, -029, -031, -032 676-489	616-013, -016, -021 675-030 676-462, -472, -484, -500	614-005, -034a, -034b 616-275 675-033, -037
3	615-025 616-011, -022, -023, -024, -123 674-032, -537, -548, -549, -550, -551, -583 675-033, -037 676-462, -472, -484, -489, -500, -592	616-007, -018 617-009	614-001a, -001b 616-008, -012, -017, -019 675-031, -032	614-002 616-013, -016, -021	614-005, -034a, -034b 616-275

Table 3-11: Helicopter Units by MBF Cost Category for Each Alternative (continued)

Alternative	2,200 feet AYD	4,400 feet AYD	6,600 feet AYD	8,800 feet AYD	> 8,800 feet AYD
4	614--005 675-033 676-462, -472, -484, -489, -500, -592	675-037	None	None	None
5	614-005 616-011, 615-025 616-019 675-033 676-462, -472, -484, -489, -500, -592	675-037	674-032, -537, -548, -549, -550, -551, -583 675-031, -032	None	None
6	615-025, 616-010,-019, 022,-023, -024,-123, 617-009, 675-033, 676-462,-472, -484,-489,-500,-592	614-001a 616-011 675-037	614-001b, 674-032,-537, -548,-549,-550,-551,-583 675-031,-032	614-002	614-034a&b
7	615-025, 616-024, -123, 674-032, -537, -548, -549, -550, -551, -583	614-001a	None	None	614-005, 614-034b

By analyzing the economic results by logging system type (Tables 3-12 and 3-13), and by offering, we can make several conclusions. Stumpage values are greatly negative in low markets when the yarding method uses helicopters exclusively, as found in all sales for Alternatives 2 and 3. By contrast, the sales that use cable yarding methods can have positive stumpage values, even in low markets. Building roads in the "Cher" Timber Sale (West Arm) is not an option because of the rugged terrain and resource concerns.

The Cher timber sale offering in all alternatives and the North Monie offering in Alternative 7 are the only exclusive helicopter offerings to show positive values at low markets. This is primarily due to very short yarding distances to barges. The cable portions of offerings were all positive at low market conditions except the North

Monie offering in Alternative 6. This is due to generally low volume units, a high proportion of road miles, and the high cost of the Island Point LTF versus the Clover Bay LTF. Most all helicopter options in Saltery Cove prove to be very negative due to very long yarding distances. Cable options in Saltery Cove show positive numbers.

The different stumpage rates between the roaded and unroaded alternatives in high markets are dramatic. See the difference between Alternatives 2 and 5. Mixing helicopter and cable systems (Table 3-13) in Alternative 3, results in slightly higher stumpage rates. However, these figures do not reflect the higher costs of restrictions to helicopter flights and the possibility of extending the logging period needed to get the volume out.

Table 3-12: Net Economic Values Per Offering, Per Logging System at Low and High Markets

Alternative 2 – Helicopter Only:					
	Sunny	Cher*	N.Monie	S.Monie	Saltery
Total Vol. (MBF)	8196	5117	6612	7616	8084
Net Stumpage Value ($) Per MBF (Low Market)	-190	10	-70	-80	-120
Net Stumpage Value ($) Per MBF (High Market.)	-80	120	40	30	-10
Alternative 3 – Helicopter Only					
	Sunny	Cher*	N.Monie	S.Monie	Saltery
Total Vol. (MBF)	4583	5117	6612	7196	6919
Net Stumpage Value ($) Per MBF (Low Market.)	-70	10	-70	-90	-190
Net Stumpage Value ($) Per MBF (High Market.)	40	120	40	20	-80
Alternative 3 – Cable Only					
	Sunny	Cher*	N.Monie	S.Monie	Saltery
Total Vol. (MBF)	3613				
Net Stumpage Value ($) Per MBF (Low Market.)	140				
Net Stumpage Value ($) Per MBF (High Market.)	250				
Alternative 4 – Helicopter Only					
	Sunny	Cher*	N.Monie	S.Monie	Saltery
Total Vol. (MBF)	4583			419	1003
Net Stumpage Value ($) Per MBF (Low Market.)	-70			-100	-60
Net Stumpage Value ($) Per MBF (High Market.)	40			10	50
Alternative 4 – Cable Only					
	Sunny	Cher*	N.Monie	S.Monie	Saltery
Total Vol. (MBF)	3613			6982	7081
Net Stumpage Value ($) Per MBF (Low Market.)	150			110	140
Net Stumpage Value ($) Per MBF (High Market.)	260			220	250

Table 3-12: Net Economic Values Per Offering, Per Logging System at Low and High Markets (continued)

Alternative 5 – Helicopter Only					
	Sunny	Cher*	N.Monie	S.Monie	Saltery
Total Vol. (MBF)	4583	5117	1473	449	1003
Net Stumpage Value ($) Per MBF (Low Market.)	-70	10	-150	-100	-60
Net Stumpage Value ($) Per MBF (High Market.)	40	120	-40	10	50
Alternative 5 – Cable Only					
	Sunny	Cher*	N.Monie	S.Monie	Saltery
Total Vol. (MBF)	3613		5139	7167	7081
Net Stumpage Value ($) Per MBF (Low Market.)	150		70	120	180
Net Stumpage Value ($) Per MBF (High Market.)	260		180	230	290
Alternative 6 – Helicopter Only					
(Short Road)	Sunny	Cher*	N.Monie	S.Monie	Saltery
Total Vol. (MBF)	4583	5117	4255	841	6340
Net Stumpage Value ($) Per MBF (Low Market.)	-70	10	-230	-50	-120
Net Stumpage Value ($) Per MBF (High Market.)	40	120	-120	60	-10
Alternative 6 – Cable Only					
	Sunny	Cher*	N.Monie	S.Monie	Saltery
Total Vol. (MBF)	3613		2358	6751	
Net Stumpage Value ($) Per MBF (Low Market.)	150		-30	160	
Net Stumpage Value ($) Per MBF (High Market.)	260		90	270	
Alternative 7 – Helicopter Only					
	Sunny	Cher*	N.Monie	S.Monie	Saltery
Total Vol. (MBF)		3933	2293		1573
Net Stumpage Value ($) Per MBF (Low Market.)		40	30		-190
Net Stumpage Value ($) Per MBF (High Market.)		150	140		-70

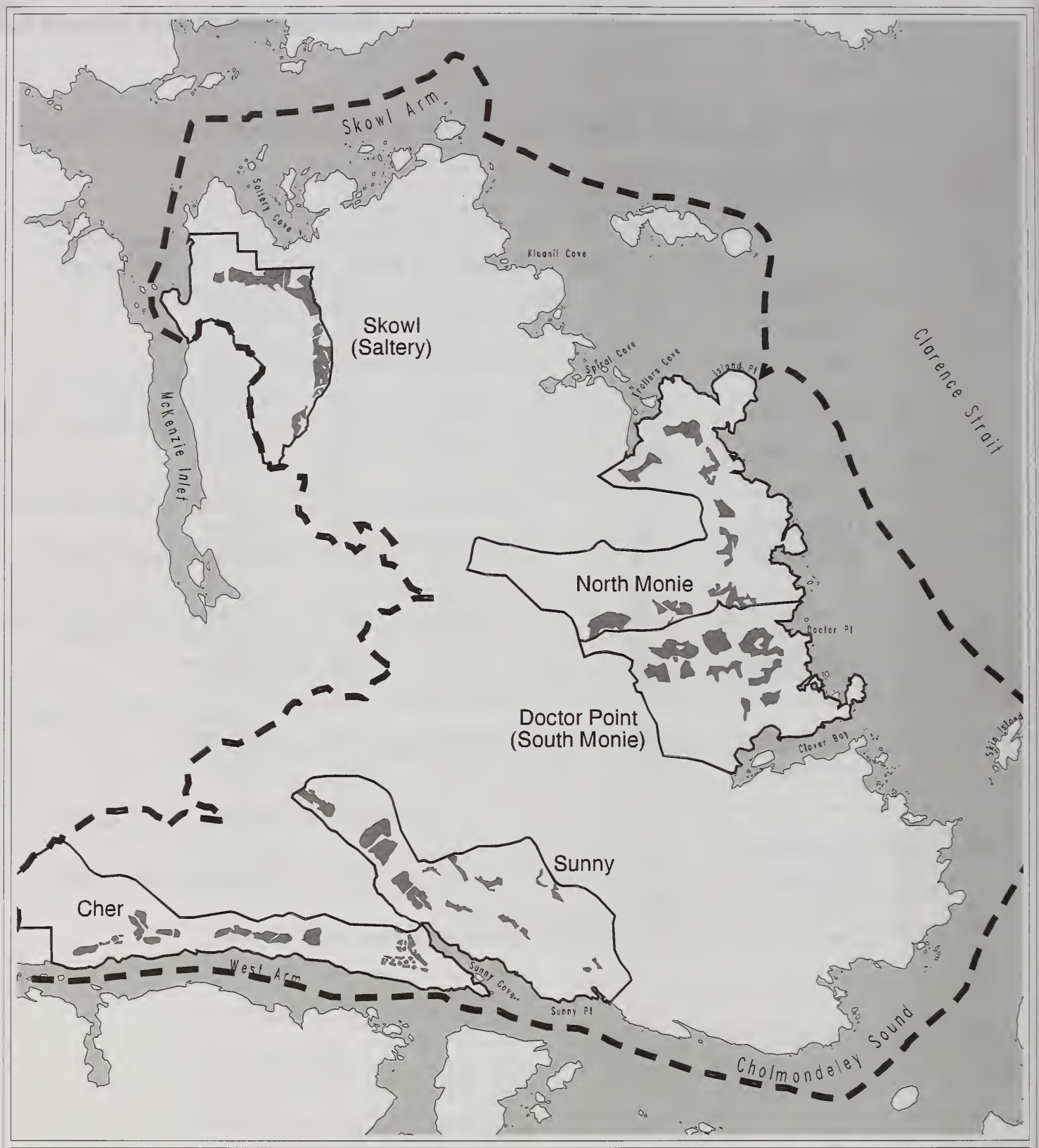
* Cher = West Arm units.

Table 3-13: High and Low Market Values by offering (Heli. And Cable Weighted Together)

Figures rounded to nearest 10
ALT 2: No roads all helicopter, 35.6 MMBF
ALT 3: Community, no roads in Saltery or Clover, 34.5
ALT 4: Drop N.Monie and W. Arm, has all three roads, 25.1 MMBF

	Sunny	Cher	N. Monie	S. Monie	Saltery	Description of Alternatives
ALT 2 Low Market	-190	10	-70	-80	-120	All Helicopter
High Market	-80	120	40	30	-10	
ALT 3 Low Market	20	20	-60	-90	-180	Community, no roads Saltery or Clover
High Market	120	120	50	10	-70	All units in Saltery, Sunny roaded
ALT 4 Low Market	20			90	140	Drop N. Monie and West Arm
High Market	120			200	240	Short Road S. Monie
ALT 5 Low Market	20	20	20	90	140	Max vol. most cable yard
High Market	120	120	120	200	240	Clover LTF, Saltery roaded
ALT 6 Low Market	20	20	-140	130	-160	Island Pt. LTF, no road Saltery
High Market	120	120	-40	240	-50	
ALT 7 Low Market		50	40		-180	Best biological OGR option
High Market		150	150		-80	Short road in Clover

ALT 5: TM max, three roads, 37.7 MMBF
ALT 6: No road in Saltery, Island Pt. LTF, road in Sunny, 35.4 MMBF
ALT 7: Drop N. Monie, drop W. Arm, no road in Saltery, Short roads in Clover and Sunny, 14.0 MMBF



Saltwater

Project Boundary

Proposed Unit

Proposed Sale Area

2 0.0 2 miles

CHOLMONDELEY
FEIS

Proposed
Sale Areas

Figure 3-10

Issue 5: Roadless Character

This roadless area analysis is based on the 2003 Roadless Inventory Map that was used in the Tongass Supplemental Environmental Impact Statement (SEIS). It updates the 1996 inventory that was used in the1997 Tongass Forest Plan Revision. This SEIS responds to the March 2001 U.S. District Court Order to evaluate and consider roadless areas within the Tongass National Forest for recommendations as potential wilderness. The 2003 updated inventory includes the most current land ownership information, new developments (roads, timber harvests, power lines, etc.) implemented since 1996, and a more refined roadless area mapping process to consistently represent unroaded areas across the forest.

The Tongass National Forest contains approximately 16.8 million acres, of which about 6.6 million acres are Congressionally designated Wilderness, National Monument, and LUD II (specifically designated roadless area) lands occurring throughout the forest. The 109 inventoried roadless areas in the 2003 inventory cover about 9.6 million acres.

Values associated with roadless areas include reference research areas, barrier areas, aquatic strongholds, and ecological sustainability. Several Research Natural Areas were established during the Forest Plan revision explicitly for the purpose of the study of these roadless area values. Other non-development areas, such as Semi-remote Recreation, Primitive Recreation, Special Interest Areas, and Wilderness also provide the opportunity for baseline monitoring. See Cumulative Effects in this section.

Roadless areas can provide safeguards against invasive, noxious or exotic pest or weed species. No pest or weed species are currently posing a major problem to native species in the project area.

The analysis that follows focuses on the effects to the unroaded characteristics on the ground.

McKenzie Inventoried Roadless Area (519)

Affected Environment

The Cholmondeley Project Area is located on the eastern two-thirds of the McKenzie Roadless Area (Number 519). This roadless area was inventoried at 84,284 acres in 1996 and 80,650 acres in the SEIS inventory, released in January 2003. The SEIS boundaries released recently were used for this analysis. Recent developments (particularly in the Rock Creek, Polk Creek, Omar Creek, and Polk Inlet areas) have reduced the size of this portion of the area relative to its size in the original Polk Roadless Area. In addition, harvested, but unroaded, areas along the shore have been added to the roadless area. Trees have re-grown in these beach-logged areas and they no longer dominate the vista. Recently harvested helicopter units along McKenzie Inlet that also do not dominate the vista were considered unroaded for inventory purposes.

The project area covers about 63 percent of this roadless area (Figure 1-1, page 1-3). The McKenzie Roadless Area is located on the east-central part of Prince of Wales Island. The shorelines of Skowl Arm and Cholmondeley Sound are very irregular and

possess many scenic coves, and there are many freshwater lakes. The Polk Inlet area was important for prehistoric and historic traditional use by the Haida Natives. The Haida Native Corporation made large land selections in this area. There is an existing Research Natural Area in the Old Tom Creek drainage, fishing lodges in Clover Bay and Saltery Cove, and a recreation cabin at Trollers cove. This area is typical southeast Alaska coastal temperate rain forest and has high populations of deer, bear, otter, marten, mink, loon, and common waterfowl. Local residents use the area for subsistence and extensively for recreation.

For the most part, this roadless area is surrounded by saltwater and, beyond the saltwater, by private or national forest lands that have been subject to moderate to heavy levels of timber harvest and roading. Nearby roadless areas just beyond these developed areas include the Karta River Wilderness to the northwest, a small roadless area on Kasaan Peninsula (7,593 acres) to the north, and the Eudora Roadless Area (195,884 acres) and the Nutkwa LUD II Area (52,961 acres) to the south.

Wilderness Potential

The natural integrity of the area is good. The opportunity for solitude within this area is generally good to excellent on the eastern half and interior. There are excellent opportunities for semi-primitive and primitive recreation due to the many saltwater and upland recreation opportunities.

To be considered wilderness, an area must have more than 5,000 acres of undeveloped land or does not contain improved roads maintained for travel by passenger type vehicles (1964 Wilderness Act). Once an area has roads, it is generally no longer available for wilderness consideration. To define a roadless area, 600- to 1200-foot buffers are applied to any roads, groups of harvest units, or other man-created disturbances. The area outside these buffers is defined as "roadless" as long as it is part of a parcel of at least 5,000 contiguous acres. The McKenzie Roadless Area exceeds the minimum wilderness criteria for acres.

During the analysis for Cholmondeley, alternatives that would change the wilderness character of the McKenzie Roadless Area were considered along with an alternative that did not affect the area.

There are excellent opportunities for primitive recreation due to the many saltwater and upland recreation sites, and the diverse terrain that breaks up the area into many isolated bays and upland lake basins. The eastern half of this area is especially suited for primitive recreation opportunities. However, many of the larger bays (i.e., Saltery Cove, Clover Bay, and Sunny Cove) contain developments with seasonal or year-round residents. The topography of the area does not make travel particularly challenging, but the presence of black bears presents a degree of challenge and the remoteness of inland portions of the area presents a need for wood skills and experience. Alternative development would temporarily reduce the solitude experience."

Wilderness Attribute Rating System

In 1977, the Forest Service, along with public interest groups, developed the Wilderness Attribute Rating System (WARS), which was used to inventory the

wilderness characteristics of roadless areas during the second Roadless Area Review and Evaluation process (referred to as RARE II). The purpose of WARS was to provide a measure of the area's wilderness quality, based on the key attributes of wilderness as defined in the Wilderness Act. It is largely based on the attributes described above in items 1 and 2 of this section (natural integrity, apparent naturalness, outstanding opportunity for solitude, and primitive recreation opportunities).

In 1979, during the RARE II process, the Tongass National Forest applied WARS for the first time and rated each unroaded VCU on the Tongass. In 1989, the inventoried roadless areas (which generally include more than one VCU) were rated according to this system for the Analysis of the Management Situation (AMS) developed in support of the Forest Plan Revision. This original version of the AMS included both the individual VCU ratings done in 1979 and the composite rating that was done for each roadless area in 1989. The 1989 rating for the Polk Roadless Area was 18 out of 28 possible points. The 1989 rating was re-evaluated in 2003 for this updated version of the AMS. Based on this re-evaluation, the McKenzie Roadless Area (which is a subset of the original Polk Roadless Area) was given a rating of 22. The difference between the 1989 and 2003 ratings is due to dividing the Polk Roadless Area into three roadless areas, of which McKenzie is one. Because the eastern half of the McKenzie area, north of Cholmondeley Sound, could be separated from the remaining more highly affected area, a separate WARS score was calculated. The WARS rating for the eastern half would increase to 24.

Resources

This area contains 19,172 acres of tentatively suitable forest land. Scenic values have also been affected by extensive development on private lands to the north and south of the project area. Low to mid-vulnerability karst features, discussed in the karst section, will remain unaffected and available to contribute to wilderness character after alternative development. The area has excellent potential for salmon enhancement projects, such as fish passes, on several of the streams. Mineral development potential is very low.

Direct and Indirect Effects

All alternatives except the no-action alternative reduce the size of the McKenzie Roadless Area to some extent. The roadless area remaining after timber harvest would extend from Spiral Cove and Kluanil Cove in the north to the northwest shore of Cholmondeley Sound. The roadless area is in the interior of the project area and is an area of rugged terrain and lake basins. This area would be eligible for future considerations as wilderness, regardless of the action alternative chosen.

Long-term ecological sustainability is discussed in detail in the Other Environmental Considerations section, Wildlife: Old-growth Forest subsection. The old-growth reserve system, developed in the Forest Plan, was created in part to provide ecological sustainability throughout the forest and attributes mentioned above.

Aquatic strongholds for fish of recreational, subsistence, and commercial value are discussed in the Other Environmental Considerations section, Fisheries, Recreation, and Subsistence subsections. Scenery and undeveloped character are discussed under

the Significant Issues section and the Other Environmental Considerations section, Recreation subsection.

All proposed units, roads, and LTFs reduce the roadless area acres by 600- to 1200-foot buffers around these "man-oriented" disturbances. Alternative 1 keeps the roadless character fully intact with all attributes as they presently exist. Alternatives 2, 3, and 6 retain slightly more roadless character in the Saltery Cove area than Alternatives 4 and 5, because no road construction is proposed in the Saltery Cove area. Alternative 7 retains the most roadless character acres south and southeast of Saltery Cove. Alternative 4 retains the most roadless character north of Monie Lake due to no roads or units proposed in that area. Alternative 7 retains the second most roadless character north of Monie Lake due to only three proposed harvest units there. Alternative 4 retains the most roadless character south and west of Sunny Cove along South Arm, while Alternative 7 retains the most roadless character north of Sunny Cove

Historical Native values of the roadless area in the form of cultural sites, as discussed in the archaeology section, will not be affected by any alternative. Historical Native uses, which centered around water-based activities, would only be temporarily affected by equipment movement and logging activities around LTFs. Modern-day use by the Native culture is minimal. We do not anticipate major impacts from this project on any present cultural use of the land.

One-thousand foot beach buffers will preserve values of historic use and still provide solitude for more contemporary uses along the shorelines. This is discussed in more depth as scenic and recreational values in their respective sections and under the significant issues. Solitude is further discussed in the 2003 analysis of the McKenzie Roadless Area, where it states, "The opportunity for solitude within this roadless area is generally good to excellent in the eastern half of the area. In the western half, because of the sights and sounds of nearby intermittent logging, the sounds of boat use in the bays, and the good chance of encountering other people along the streams, the opportunity is considerably reduced.

The McKenzie Roadless Area acres would remain at or be reduced as follows:

- **Alternative 1** - The McKenzie Roadless Area would not be reduced. The amount of existing productive old growth remaining is 100 percent.
- **Alternative 2** - The McKenzie Roadless Area would not be reduced. The amount of existing productive old growth remaining would be reduced to 95 percent. According to Forest Plan (SEIS) definition, helicopter logging would reduce productive old growth and the inventoried roadless acres would not be reduced.
- **Alternative 3** - The McKenzie Roadless Area would be reduced by 1,337 acres. The amount of existing productive old growth remaining would be reduced to 95 percent.

- **Alternative 4** - The McKenzie Roadless Area would be reduced by 3,836 acres. The amount of existing productive old growth remaining would be reduced to 97 percent.
- **Alternative 5** - The McKenzie Roadless Area would be reduced by 5,597 acres. The amount of existing productive old growth remaining would be reduced to 95 percent.
- **Alternative 6** - The McKenzie Roadless Area would be reduced by 4,403 acres. The amount of existing productive old growth remaining would be reduced to 95 percent.
- **Alternative 7** - The McKenzie Roadless Area would not be reduced. The amount of existing productive old growth remaining would be reduced to 99 percent. According to Forest Plan (SEIS) definition, helicopter logging would reduce productive old growth and the inventoried roadless acres would not be reduced.

Cumulative Effects

The action alternatives in this project would reduce the current size of the McKenzie Roadless Area by 1 to 5 percent. Since this harvest entry is expected to be the only major commercial entry in the foreseeable future, we do not expect this portion of the McKenzie Roadless Area to be reduced further. Past harvest effects are evident (particularly in the Rock Creek, Polk Creek, Omar Creek, and Polk Inlet areas), as the original size of 84,284 acres (1996 inventory) has been reduced to 81,280 acres (2003 inventory). In addition, helicopter partial cuts have been harvested, but unroaded areas along the shore have been added to the roadless area. Trees have re-grown in these beach-logged areas and they no longer dominate the vista. Recently harvested helicopter units along McKenzie Inlet that also do not dominate the vista were considered unroaded for inventory purposes. Lack of planned future harvest limits the potential for additional cumulative effects.

Future human disturbance would be somewhat limited by the Forest Plan Standards and Guidelines assigned to old-growth reserves (OGR). Additional acres of OGR above the existing Forest Plan acres are proposed for all alternatives. Private land with community development has occurred on the north and south ends of the project area (Saltery Cove and Sunny Cove). The potential exists for houses to be built on community lots in these areas in the future. Other state and Native corporation lands exist near Saltery Cove. The Forest Service is not aware of any plans for development of these areas. There are approximately 1,500 acres in other-than-national-forest ownerships on the project area.

Other Environmental Considerations

Several resources and uses of the project area are likely to remain unaffected by the proposed action or alternatives, or would not be affected to a significant degree. Even though significant effects are not anticipated, most of these resources are discussed in

this chapter to the extent that measurable effects or differences between alternatives are present.

Silviculture

The silvicultural analysis is summarized from the Silviculture and Timber Management Resource Report for the Cholmondeley Project Area, (project file) and tiers to the Forest Plan FEIS, Chapters 3, 4, and Appendix G, for general descriptions of plant communities. This report includes details on stand development, silvicultural and harvest systems, long-term timber productivity, wind effects, timber supply, reconnaissance procedures, volume strata, forest land classifications, forest health, and economic analysis. See Chapter 1 for desired future condition information.

Affected Environment

The project area contains approximately 52,772 acres of land. Of the approximately 132 acres previously harvested, 32 acres are included in Native or state land conveyances and 100 acres are within the 1000-foot beach fringe and are not part of the suitable timber base.

The Cholmondeley Position Statement (project file) concluded that the project area contained three areas of concentrated volume intermixed with scattered low-volume stands that are difficult to access. Old-growth reserves and beach buffers are not available for timber harvest (Forest Plan). Very high hazard soils, steep slopes, and riparian areas were identified as unsuitable for timber harvest during field reviews. Approximately 4,440 acres of suitable and available timber remain. Of this area, 2,153 acres are on NIC I lands and 2,287 acres are on NIC II lands (Silviculture Report, project file). These areas of suitable and available timber are scattered across the project area. The timber volume in some of these areas does not support the cost of access, limiting the area of timber harvest.

Silvicultural diagnoses and prescriptions propose structural retention for resource needs other than timber. The project area is within a higher risk biogeographic province and less than 33 percent of each VCU has been harvested. Forest Plan Standards and Guidelines for marten habitat were applied to units with high value marten habitat (Forest Plan, 1997, pages 4-118 and 4-119). Goshawk Standards and Guidelines were not applied, since less than 33 percent of each VCU has been harvested (Forest Plan, 1997, pages 4-90 and 4-91).

Forest Disturbance

Wind is a major disturbance factor in Southeast Alaska, altering the structure of the forest. Windthrow is responsible for much of the annual tree mortality in Southeast Alaska. Scattered windthrow of large over-mature trees is a prime cause of mortality and it creates small openings in the canopy. Wind can also blow down stands covering many acres. Occasional severe storms disturb large areas, initiating secondary forest succession, creating stands of relatively uniform age and size. Areas not projected by topographic features from the severe effects of infrequent, major storms are subject to catastrophic damage. Portions of the project area are subject to Southeast storm winds blowing up Clarence Strait. Reconnaissance of the project area shows mostly small pockets of existing windthrow, with no evidence near planned units of large-scale windthrow resulting in extensive even-aged stands.

Oliver (1990) describes forest succession as follows:

1. ***Stand Initiation Stage.*** After a disturbance, trees and shrubs re-colonize the site. Stands developing after a major disturbance are described as 'even-aged' stands, since trees are assumed to have grown shortly after the disturbance.
2. ***Stem Exclusion Stage.*** As the trees continue to grow, the forest canopy closes, limiting the amount of sunlight reaching the forest floor. New trees do not appear and some of the existing ones die. The surviving trees grow larger in height and diameter.
3. ***Understory Reinitiation Stage.*** As trees die or are blown down, limited sunlight reaches the forest floor. Forest floor herbs, shrubs and young trees again re-colonize and survive in the understory, although they may grow very little.
4. ***Old Growth Stage.*** As trees in the overstory begin to die, understory trees will replace them, over time resulting in a multi-aged forest, with multiple canopy layers, which typifies the "old growth" stage.

These stages are useful as a means of predicting the changes in vegetation structure that are likely to occur after timber harvest using alternative silvicultural prescriptions. Even-aged prescriptions convert stands to the Stand Initiation Stage. Two-aged prescriptions assist stands to reach the Understory Reinitiation Stage more rapidly than even-aged prescriptions. Uneven-aged prescriptions maintain more of the stand in the Old Growth Stage. Precommercial thinning can shorten the time for a stand to reach the Understory Reinitiation Stage and help retain forage for a longer period. Commercial thinning performed during the Understory Reinitiation Stage may add to stand structural diversity as well. See the Silviculture/Timber Resource report in the project planning record for additional information on succession and windthrow. Table 3-18 gives the anticipated acres of silvicultural system that would move stands toward the different successional stages mentioned above.

Volume Estimates

The commercial forest land is divided into three strata – high, medium, and low – to derive volume estimates (Forest Plan FEIS, page 3-19). These strata are based on timber type information, soil and land classifications, and topography. Volume estimates on the southern area of the Tongass National Forest are:

14 MBF/acre - low-volume strata

23 MBF/acre - medium-volume strata

30 MBF/acre - high-volume strata.

The percent of the commercial forest land in the low, medium, and high strata on the Cholmondeley Project Area is 13, 51, and 36 percent, respectively (Table 3-14).

Silviculture Systems

The silvicultural prescriptions for the harvest units address the variety of stand conditions and resource issues. These prescriptions include even-aged, two-aged, and uneven-aged systems (Forest Plan FEIS, Appendix G). The choice of systems depends on the resource objectives for the units. Resource objectives include desired species composition, stand density, growth rate, insect and disease control, and overstory

condition and development. See Table 3-20 for a breakdown of silvicultural systems by alternative.

Even-aged System

This system produces stands that are essentially the same age and include clearcut, seed tree, and shelterwood harvest methods (with or without reserves). Clearcut with natural regeneration is currently the most commonly used system on the Tongass National Forest. Clearcut harvest is essential to meet the Forest Plan Resource Schedule (Forest Plan, Appendix L). It is justified because it reduces potential adverse effects such as disease infestations (mistletoe), windthrow, and logging damage. It also enhances regeneration and growth of desired shade-intolerant tree species (Silviculture and Timber Report, project file).

Even-aged systems in this analysis include reserves, leaving some (less than 15 percent) of the original stand on the site. The residual structure would be left on the site for the rotation, and would retain some of the original biological components in the developing stands. Even-aged systems are easiest to implement and provide the most volume for the least expense.

Even-aged systems have more visual impact than other harvest systems. Clearcut harvest methods are used on the Cholmondeley Project Area to enhance regeneration potential and to maximize economic return on harvest. Clearcutting is only used when the VQOs can be met, soils and slopes are stable, and wildlife and streams are not unduly impacted (Appendix B).

Reserve trees can be incorporated into clearcuts by four basic methods: Type A, Type B, Type C, and Type D (Silviculture and Timber Report, project file).

Type A clearcuts – Safe snags and nonmerchantable reserve trees are left within 50 to 100 feet of the harvest unit edges. Non-merchantable trees are also left near internal boundaries to meet the Region 10 Reserve Tree Guidelines. Trees are directionally felled toward the landing to prevent damage to the reserve trees. Type A clearcuts are practical for implementation with cable yarding.

Type B clearcuts – This type is similar to Type A, except a specified number of snags and live tree replacements of a minimum diameter are retained in the 50- to 100-foot border. Live reserve trees may only be required in stream buffers because the unit boundaries can be adjusted around the reserve. Type B clearcuts are practical for implementation with cable yarding.

Type C clearcuts – Nonmerchantable trees and safe snags are left over the entire unit. This type of clearcut can be implemented using helicopter yarding.

Type D clearcuts – Clumps of reserve trees in islands or fingers are provided within the unit. This type can be implemented where rock outcrops, cliffs, or blind leads make harvesting uneconomical or infeasible. Clumps of reserve trees can also be left in other areas if helicopter yarding or cable yarding with lateral yarding capability is the logging system to be employed. A Type D

clearcut can be prescribed by itself or in combination with one of the other three types.

Two-aged System

This system is designed to regenerate or maintain stands with two age classes. Two-aged stands in this analysis retain a portion (more than 15 percent) of the original stand. Trees are left in clumps and/or scattered individually over the site. Two-aged systems have some of the advantages of even-aged systems and retain more of the original stand complexity. Specifically, a two-aged system is prescribed as part of the biological matrix to address wildlife needs. Visually sensitive areas also benefit by the additional tree retention. High winds may blow down some of the residual trees. Leaving the trees in clumps would reduce the potential for windthrow.

Harvest systems must meet criteria for tree retention, tree distribution, and size of openings created in the units to qualify as a two-aged management system. Reserve trees are left in perpetuity and create the two-structured stand. The criterion for tree retention roughly equates to leaving more than 15 percent of the unit volume standing in the unit. A memo by Tom Puchlerz, dated April 5, 2000, calls for the retained trees, on the average, to be equal to or greater than the crown competition factor (CCF) of 30. This will be based on the height and crown width related to diameter for open-grown western hemlock and Sitka spruce. The reserve trees address wildlife corridor, marten habitat, and soil protection requirements. The distribution of reserve trees can be in clumps or scattered throughout the units. Clumps of reserve trees must be more than two tree lengths apart. Clumps of reserve trees are at least 100 feet across and allow for 200-foot-wide openings. Trees left in openings must be more than one tree length away from a clump or unit edge (memo, Tom Puchlerz, April 5, 2000). Reserve trees scattered throughout the unit must be within one mature tree length of each other. The sizes of the openings are as wide as about two tree heights. Linear openings may be less than twice the mature tree height on their shortest axis but exceed twice the height on the long axis.

Uneven-aged System

Uneven-aged systems regenerate and maintain a multi-aged stand structure by removing some trees from all size classes either singly, in small groups, or in strips. Uneven-aged management maintains or creates a stand with three or more distinct age classes. The density of the overstory is regulated to avoid suppression of the understory trees and maintain stand vigor. Uneven-aged systems retain the highest structural diversity and biological complexity of the original stand. It is generally a favorable system for shade-tolerant species like western hemlock.

Even-aged and two-aged systems mimic large-scale disturbance such as might result from windstorms, landslides, or avalanches. Uneven-aged systems mimic small-scale disturbance such as individual tree blowdown. Site conditions influencing the choice of system include species composition, stand density, growth rate, insect and disease virulence, overstory condition, soil type, and topography.

Log Yarding

Yarding logs is the process of moving logs from the stump to the collection area or landing. The full spectrum of yarding methods is used depending on access,

topography, resource protection requirements, and costs. Yarding methods include ground-based systems, cable systems, and helicopters.

Ground-based systems are used on gentle terrain and logs are in full contact with the ground, with the exception of shovel logging, which can achieve partial to full suspension. They are the least expensive of the yarding systems and cost about $79 per MBF. These systems have limited utility on the Cholmondeley Project Area due to the steep terrain. They are most often used adjacent to roads.

Cable systems are used on steep slopes and wet soils. Logs can be partially or fully suspended off the ground, which limits soil disturbance. Running skyline and slackline cable systems are the most commonly used systems and provide partial log suspension. The live skyline cable system provides full log suspension. The average cost of all types of cable systems is $152 per MBF.

Helicopter yarding allows logs to be lifted off the ground, which causes the least ground disturbance, or damage to the trees left standing on the site (residual trees). Helicopter flight time costs between $2,000 and $5,000 per hour and averages about $315 per MBF. Factors that affect flight time include elevation differences and distances between stump and landing, logs or volume per acre, species mix and value, payload capabilities of the aircraft, and water versus road drop points.

Post-Harvest Silvicultural Treatments

Post-harvest silvicultural treatments would be prescribed to move the project area further towards desired future conditions. The type of treatment would depend on land use classification, slope, soils, aspect, elevation, resource objectives, and economic feasibility. Pre-commercial thinning is anticipated in 15 to 30 years on some of the units proposed for harvest in this project area. Commercial thinning is anticipated in 30 to 50 years, depending on whether the individual stands received precommercial treatments previously. Alter plantings may occur on log transfer facilities as rehabilitation for meeting visual objectives. See the visuals sections of Issues 1-3. Unit prescriptions would guide silvicultural treatment planning and field verification would identify priority treatment areas (Silviculture Report, project file).

Direct and Indirect Effects

Volume Strata

Approximately the same percentages of volume in Alternatives 2, 3, 5, 6, and 7 is left after harvest across the three volume strata. These approximate the existing condition with slightly more harvest in the low strata. In Alternative 4, slightly more volume remains in the high volume strata (Table 3-14). Generally, this shows that more harvest is coming from the lower volume strata than the medium and high strata across all alternatives.

Table 3-14: Percent of Commercial Forest Land Remaining After Harvest, by Volume Strata

	Alt. 1 Existing Condition	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7
Low-volume Strata (%)	13	10	10	5	10	10	11
Medium-volume Strata (%)	52	55	54	54	55	55	59
High-volume Strata (%)	35	35	36	41	35	35	30

Source: USDA Forest Service, Tongass GIS

The initial volume estimates derived from the volume strata were adjusted using aerial photograph interpretation and field verification during alternative development (Silviculture Report, project file). The expected volume estimates for each value comparison unit (VCU) are displayed in Table 3-19.

Volume Class

Although the accuracy of volume classes on the Tongass for volume estimates is controversial, they can be used in wildlife models as a predictor of canopy structure for biodiversity. See the wildlife section of this chapter. The majority of harvest within each alternative occurs in Volume Class 4 (lowest) across all alternatives. See table 3-15 below. Seventy-eight percent (Alternative 4) to 87 percent (Alternative 7) of harvest in those alternatives will occur in the lower volume classes on the project. This coincides with the cedar component in the forest. See the Cedar Harvest section of this chapter for more explanation. The higher volume classes represent a smaller proportion of the cut – seven percent in Alternative 7 to 16 percent in Alternative 4.

Table 3-15: Percent of Acres Harvested Per Volume Class By Alt.

	None *	VC 4	VC 5	VC 6	VC 7
Alternative 2	6%	60%	21%	9%	4%
Alternative 3	6%	60%	21%	10%	4%
Alternative 4	5%	54%	24%	12%	4%
Alternative 5	6%	60%	21%	9%	4%
Alternative 6	6%	60%	20%	10%	4%
Alternative 7	6%	67%	20%	5%	2%

*GIS overlaps into slivers of scrub timber, which shows "no volume" class.

The percent of volume class harvested on the total project area, per alternative is displayed below in table 3-16. The data shows that harvest is fairly evenly spread across all volume classes with less than 10% of any volume class harvested in any alternative. All alternatives except alternative 4 show a slightly larger harvest in the lower volume classes compared to the higher classes.

Table 3-16: Percent of Volume Class Harvested On the Project Area Per Alt.

	VC 4	VC 5	VC 6	VC 7
Alternative 2	9%	7%	8%	6%
Alternative 3	9%	7%	8%	6%
Alternative 4	5%	5%	6%	4%
Alternative 5	9%	7%	8%	6%
Alternative 6	9%	7%	8%	6%
Alternative 7	3%	2%	0.1%	0.1%

Table 3-17 below portrays the percent of project acres harvested by volume class per alternative. The table verifies that no one volume class is being over harvested. The lower volume classes are being harvested slightly more heavily than the higher volume classes in alternatives 2, 3, 5 and 6. Alternative 4 harvests the same in the lower classes and the higher classes and alternative 7 harvests 5% more in the lower classes.

Table 3-17: Percent of Harvest by Volume Class Per Alternative

	VC 4	VC 5	VC 6	VC 7
Alternative 2	9%	7%	8%	6%
Alternative 3	9%	7%	8%	6%
Alternative 4	5%	5%	6%	4%
Alternative 5	9%	7%	8%	6%
Alternative 6	9%	7%	8%	6%
Alternative 7	3%	2%	0.1%	0.1%

Species composition was derived from stand exam plots taken in most planned units. Table 3-18 shows the breakdown of percentage of merchantable species by alternative. Redcedar and western hemlock are predominant and correlated to the volume class and strata percentages. Cruise plots at the time of sale appraisal will more accurately calculate the species composition. All alternatives harvest approximately the same percentage of cedar, although Alternatives 7 and 4 harvest slightly less. The NEAT program uses the species composition for its estimate of values and the sale appraisal will go into more detail at the time of sale.

Table 3-18: Percentage of Merchantable Species by Alternative

	Percent Net MBF per Species per Alternative					
	WH	WRC	AYC	SS	MH	Total %
Alternative 2	31%	40%	19%	5%	5%	100.00%
Alternative 3	30%	40%	19%	6%	5%	100.00%
Alternative 4	34%	37%	20%	7%	2%	100.00%
Alternative 5	31%	40%	19%	5%	5%	100.00%
Alternative 6	29%	40%	19%	5%	7%	100.00%
Alternative 7	31%	42%	18%	3%	6%	100.00%

WH = Western Hemlock
WRC = Western Redcedar
AYC = Alaska Yellow Cedar
SS = Sitka Spruce
MH = Mountain Hemlock

Proposed harvest units range from 5 to 105 acres. Two units, 614-001 and 675-033, exceed 100 acres. The actual opening size created in these units would be somewhat less due to the expanded riparian buffers, varying densities of reserve trees, inclusions of sensitive soils or steep slopes that would not be harvested, and use of multiple silvicultural systems within the units. The presale process will ensure that the clearcut opening will be less than 100 acres in size

All proposed harvest units are expected to regenerate within 5 years (36 CFR 219.27(c)). Some sites may need fill-in planting of yellow cedar to maintain species diversity. Refer to the Silviculture and Timber Resource Report for more details.

Table 3-19: Proposed Harvest Volumes (MBF) by VCU

VCU	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7
614	0	8,084	6,919	8,084	8,084	6,352	1,573
615	0	1,042	1,042	0	1,042	1,042	1,042
616	0	12,972	12,552	7,402	12,972	12,948	1,251
617	0	214	214	0	214	214	0
674	0	3,933	3,933	0	3,933	3,933	3,933
675	0	8,352	8,352	7,168	8,352	8,352	0
676	0	1,028	1,028	1,028	1,028	1,028	0
Total Unit Volume	0	35,625	34,040	23,682	35,625	33,869	7,799
Right-of-Way	0	0	437	1,371	2,117	1,563	0
Total Volume	**0**	**35,625**	**34,477**	**25,053**	**37,742**	**35,432**	**7,799**

USDA Forest Service, Tongass GIS

Table 3-20: Silvicultural Systems (Acres) By Alternative

Silvicultural System	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7
Even-aged (w/reserves)	0	1,389	1,101	856	1,389	1,119	318
Two-aged	0	122	388	85	122	367	37
Total Acres	**0**	**1,511**	**1,489**	**941**	**1,511**	**1,486**	**355**

USDA Forest Service, Tongass GIS

Table 3-21: Logging System (Acres) by Alternative

Yarding Type	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7
Running Skyline	0	0	74	456	538	360	0
Slackline	0	0	60	168	268	163	0
Helicopter	0	1,511	1.355	224	530	911	355
Live Skyline	0	0	0	4	73	0	0
Shovel	0	0	0	89	102	52	0
Total Acreage	**0**	**1,511**	**1,489**	**941**	**1,511**	**1,486**	**355**

USDA Forest Service, Tongass GIS

The silvicultural and yarding systems proposed in the alternatives are displayed in Tables 3-20 and 3-21, respectively. Alternatives 2 and 5 harvest the most suitable and available area (34 percent) followed closely by Alternatives 3 and 6 (33.5 percent). Alternative 4 harvests 21 percent and Alternative 7 harvests 8 percent of the suitable and available area.

Long-term Timber Productivity (Yield)

All stands proposed for harvest are over-mature and well beyond the age of maximum average annual growth of the stand. The commercial species composition within the Cholmondeley unit pool is western hemlock, Sitka spruce, Alaska yellow cedar, and western redcedar. Most stands are representative of uneven-aged western hemlock or cedar that commonly take hundreds of years to develop under natural conditions. Harvest increases forest floor temperatures, speeding up organic decomposition and increasing the supply of available nutrients to the trees. The effects of all action alternatives on long-term yield would be the partial conversion of unmanaged, slow-growing, overmature stands to managed, faster-growing, multi-aged, two-aged, or even-aged stands with a minimum of defect.

The open conditions created by even-aged and two-aged systems allow Sitka spruce, western redcedar, yellow cedar, and western hemlock to regenerate rapidly, but tend to favor spruce over hemlock. Based on experience with even-aged stands, the composition generally includes 10-30 percent Sitka spruce, 40-70 percent hemlock, and 10-30 percent cedar, depending on the soil type and the age of the stand. With even-aged systems and with the use of precommercial thinning, the percent of hemlock is decreased and cedar and spruce increased, usually by an additional 10-20 percent.

As described above, the Cholmondeley project area contains a high percentage of low volume stands of which cedar is a dominant component. Harvesting coincides on a

high percentage of stands. The Direction section below describes practices used to maintain the cedar component over time on the project area.

Although log grade (due to diameter and knots) in managed stands could be lower than in existing overmature stands, even on sites that have been precommercially thinned, total yield per acre will be higher in managed stands. The lower quality would be reflected in the log grades; with managed timber stands having fewer top grade logs than existing overmature stands. Most managed stands will exhibit less variation in tree diameter and height than the overmature stands they replace. Defect in the new stands is expected to be much less than the existing stands. Mistletoe infestation is not considered significant on the project area on anything greater than a stand by stand basis.

Cumulative Effects

Depending on the alternative chosen, this one-entry proposal has the effect of isolating at least some amount of tentatively suitable timber. Using helicopters as the primary logging system limits the options for using different logging systems in future entries, and can result in less economical sales. A one-entry proposal using cable logging systems can also isolate some suitable timber, but to a lesser degree. During ground reconnaissance, many of the suitable acres were judged not suitable and will probably be dropped from the timber base. Therefore, the likelihood of future substantial timber harvest and its accompanying cumulative effects is greatly diminished. Past harvest includes 132 acres of even-aged harvest and scattered individual tree harvest in the project area. Future commercial entries on those acres are not anticipated because some acres are located in private ownership and the rest are within the 1,000-foot beach buffer.

Planned harvest for this entry would be up to approximately 1,500 acres. This is about 3 percent of the project area and 9 percent of the available Productive Old-growth (POG).

After analyzing windthrow salvage opportunities and possibly salvaging some volume within 2 to 4 years of this initial entry, roads will be closed. At this time, a major second entry on the existing volume is not planned in the foreseeable future. Any future entries would occur after the harvested timber has grown to a viable size for an economic sale.

Throughout our planning process, we have incorporated mitigation measures, redesigned unit shapes, and changed silvicultural systems to minimize the direct and indirect effects of harvest. Therefore, we do not anticipate any effects on the timber resource on National Forest System lands beyond those discussed as direct and indirect effects.

Harvested private lands to the north and south are separated from the project area by large bodies of water. We do not have records identifying the amount of harvest that has occurred. Existing direct and indirect effects of these activities to residents and tourists have been covered in the visuals and wind discussions under issues one through three.

The State of Alaska has stated they currently do not plan to harvest state lands in the project area. Sealaska Corporation has also stated that they have no plans for harvest

at this time. Although this is not a guarantee, it is not appropriate to speculate on the amount of harvest that "could" occur on these small parcels of timber along beach fringe areas.

In promoting the wilderness experience, lodge activities now exist with the distant backdrop of native harvest to the north, northwest, and southeast of the project area. Our efforts in unit design and silvicultural methods with visual concerns in mind should add very little additional concerns to those that already exist. Therefore, we anticipate no additional cumulative effects above the direct effects to the businesses from the visual aspects, as discussed under Issues 1, 2, and 3.

Cedar Harvest

The project area contains two species referred to as cedar: western redcedar (WRC) (*Thuja plicata*) and Alaska yellow cedar (AYC) (*Chamaecyparis nootkatensis*). They are usually found as a minor component within mixed conifer stands dominated by western hemlock.

Inventory

The Forest Inventory and Analysis (FIA) concluded that in the mixed conifer type, 3.8 percent is AYC, 21.6 percent is WRC, with 11.8 percent of the forest being mixed conifer. Cedar is a major component of these types with less of a component in the western hemlock type, which makes up an additional 39.7 percent of the forest in the Ketchikan inventory unit. Net volumes by species were also calculated with 9.5 percent being AYC and 12.5 percent being WRC in the Ketchikan inventory unit.

Alaska yellow cedar decline has affected several hundred thousand acres. Its cause is not fully understood. Yellow cedar standing dead volume can be significant but was not included in these figures.

Historical Harvest

Cedar has been a minor component of the annual Tongass National Forest harvest but it has had a premium value. Alaska yellow cedar has not had an established local demand and has been authorized for round-log export. The export market is no longer as strong as it was in the past.

Prior to closure of the Ketchikan Pulp Mill, western redcedar was considered surplus to local needs and exported as round logs. Preferential treatment is given to local mills since a price quote is required from local mills prior to obtaining a quote from lower 48 mills. Now, more is being processed locally, and for the past several years, the lower 48 states have been given preferential treatment before logs can be exported. About 50 percent of the volume harvested is ultimately determined to be surplus and is exported. Over the past 10 years approximately 18.5 percent of the annual harvest has been cedar. This is consistent with the Tongass natural volume distribution, which is about 20 percent.

Direction

Programmatic timber harvest direction treats cedar as any other component of the forest. The Forest Plan states that silvicultural prescriptions will consider regeneration and maintenance of minor species, of which cedar is considered. Species composition can be enhanced and maintained in several ways. Harvest designs and post-sale

activities are planned to achieve species composition objectives. Leaving advanced regeneration, fill-in planting, and precommercial thinning favoring particular species will all be used to maintain the cedar component in the project area. Reserve trees and trees near unit boundary locations left in nearly all planned units will contain and target cedars to be left as seed source trees.

About 15 MMBF of cedar was planned for harvest annually under the allowable sale quantity (ASQ) in the Forest Plan (Forest Plan Final EIS, p. 3-285). However, there is no conditional direction for harvest related to species. There are no limits on harvest by species under the umbrella of the ASQ limit. Since the Forest Plan revision, approximately 20 MMBF of cedar is being harvested annually. Four reasons why it is more than the planned volume are as follows:

1) Other resource objectives have forced the cut from the higher volume classes to the lower classes. This is where cedar is more prevalent.

2) More harvest is taking place on the southern portion of the Tongass where a higher percentage of the cedar component is located.

3) The amount of cedar in a timber sale has a direct relationship to timber sale economics. To meet resource objectives and comply with Standards and Guidelines for not isolating timber and planning logical settings, timber sale economics can require that cedar be emphasized. This can be achieved by selecting a project area that has a higher than average cedar component and harvesting proportionally, or by designating a greater portion of cedar than it's normal occurrence in a project area.

4) Under a depressed market (current), purchasers may operate in only those sales that have the greatest chance of positive return. This may include sales of a higher-than-average cedar component.

Current levels of timber harvest should have no adverse effect on the quantity or composition of cedar in the future. Both cedars are shade intolerant and typically found in mixed stands with western hemlock and, to a lesser degree, spruce. Overstory removal of hemlock and spruce will typically open up the canopy and release cedar advanced regeneration.

The Cholmondeley Project Area contains a higher-than-average amount of the cedar component. This is due to the greater amount of wetter and lower quality growing sites. Cedar is more competitive on these sites, which are characteristic of the low volume class strata.

As mentioned above, prescriptions contain direction to presale preparation for cedar reserve trees and post-treatment activities, which will help to maintain the cedar component on the project area. See "Cedar Harvest on the Tongass (1997-2000)" by Bill Wilson for a further explanation.

Data was processed through "Superstand," the R-10 Stand exam processing program. It was run on the original unit size and configurations for Alternative 5. It calculated that approximately 60 percent of the volume proposed for harvest would be from the cedar component of the forest. This is assuming net volumes per acre and assuming even-aged management with no reserve trees left. This high percentage will be

somewhat lowered through marking guides which will call for leaving cedar seed trees where they exist along unit boundaries and leave areas, and reserve trees called for in the individual unit prescriptions. Also see the "Timber Workforce" section under Issue 4 for more explanation of cedar harvest predictions. The planning record contains stand volume breakdowns. Future stand treatments call for fill-in planting of cedar where regeneration appears to be scarce, and precommercial thinning which will favor cedar as leave trees.

Several other reasons exist for the appearance of the high percentage of cedar harvest. The areas below tend to be the higher volume spruce/hemlock stands, which remain unharvested:

- stream buffers
- old growth reserves
- lake buffers
- additional buffers above the normal standards and guides (slope-break buffers and RAW buffers)
- one-thousand foot beach buffers

Pacific Yew (Taxus brevifolia)

The Pacific Yew tree is protected under the Pacific Yew Tree Act of 1992 (January 3, 1992, 16 U.S.C. 4804).

The Cholmondeley Project Area is at the very northern-most portion of Pacific yew's (*Taxus brevifolia* Nutt.) range. Pacific yew is typically found within 500 feet of saltwater as it depends upon the warm maritime climate to exist at this latitude.

Ketchikan Area Ecologist, Tom DeMeo, conducted an inventory of Pacific yew on the area just south of the project area in 1992. The study concluded that populations were very low, with an estimated six trees per mile of shoreline. Most sightings around Cholmondeley Sound have been on low quality sites or within 500 feet of the shoreline. In the project area, it appears as a small tree or shrub and is found scattered on the extreme southern and eastern end of the project area (around Monie Lake).

Silvicultural characteristics show that Pacific yew is very tolerant to shade and requires it for establishment (Pacific Yew Act of 1992). Studies have shown that Pacific yew can grow and can adapt to shaded conditions (Mitchell 1998, Crawford 1983); however, Difazio (1997) also suggests that tree vigor increases with overstory openness. Stump sprouting is the major form of propagation for the yew. In dryer climates exposure to sun may dry out stumps and sprouts; however, in the wetter climate of Southeast Alaska, this drying should not occur. Experiments in western Washington have shown that artificial shading also did not affect the survival of the sprouts (Minore 1996).

The Pacific Yew Act of 1992 calls for "sustainable harvest," "long-term conservation," "allowing for resprouting," and "minimizing adverse effects." In light of the diverse silvicultural properties listed above, it appears that several options exist for yew management in promoting the goals of the Act. In Cholmondeley Sound, the yew

appears as an understory tree. However, as mentioned above, it can tolerate the less than intense sunlight of Southeast Alaska if it happens to occur in a more open condition. It may be able to adapt to a partial canopy removal such as an overstory removal, or it may be able to resprout in an open canopy like an even-aged clearcut, particularly one with reserves.

Effects anticipated from harvest include damage to individual trees during cable yarding operations. This would depend on yarding corridor placement. Individual trees normally would not be cut because of their non-commercial status, less than merchantable size, and understory location. Most of these scattered trees would occur in the 1,000-foot beach buffer and in low-quality stands. Helicopter yarding would tend to have less impact due to full suspension yarding and due to more understory trees left standing. Pacific yew would be expected to regenerate under various canopy densities (Mitchell 1998).

Wildlife (Old-Growth Forest and Species)

Wildlife Habitat: Old-growth Forest

Old-growth forests are ecosystems distinguished by stands containing old, large trees and related structural attributes (Forest Plan FEIS). Old growth encompasses the later stages of stand development, which typically differ from earlier stages in a variety of ways: larger tree sizes and more variation in size and spacing; large, dead standing or fallen trees; broken or deformed tops; bole and root decay; multiple canopy layers; and canopy gaps and understory patchiness (Forest Plan FEIS). The combination of a dense canopy with scattered small openings (20 to 40 feet across) provides thermal cover and maintains forage availability through winter. Large, dead, or defective trees provide denning and nesting sites for marten, owls, eagles, wrens, and chickadees, as well as feeding sites for woodpeckers, sapsuckers, brown creepers, and others. Large old-growth blocks provide expansive hunting territories and protection from predators, and promote genetic mixing among populations.

The old-growth forest resource of the Tongass National Forest is characterized in a number of ways. In a very general way, old-growth forests are divided into a productive or unproductive category, based on the ability to grow wood fiber at a rate greater than 20 cubic feet per acre per year or having >8,000 board feet per acre (bf/acre) (Forest Plan FEIS). Productive old-growth forest (POG) in the project area was identified through GIS analysis.

Productive old-growth forest is divided into three volume strata: high, medium, and low. The high-volume strata old-growth forest provides moderate levels of understory vegetation but superior snow interception. Thus, forage is readily available to a variety of wildlife species throughout the winter (Forest Plan FEIS, page 3-19). The more open canopy of the medium-volume strata old-growth forest results in a more abundant understory but less snow interception in the winter. The understory of the low-volume strata tends to be brushy, which limits forage production. Forage in the low-volume strata is unavailable in the winter when snow levels are deep because there is little forest canopy to intercept snow.

The National Forest Management Act (NFMA) regulations (36 CFR 219) define biological diversity as the distribution and abundance of different plant and animal communities and species. Biological diversity, or biodiversity, refers not only to the variety of organisms in an area; it also includes their genetic composition, the complex

pathways that define how organisms relate to one another in the environment and the processes that sustain the whole system. Biodiversity plays a key role in how well an ecosystem functions. It can be evaluated at several different scales, ranging from genetic and species diversity to landscape diversity.

The Forest Plan includes as the foundation of its viability strategy a forest-wide system of old growth reserves that maintain the integrity of the old growth ecosystem. This system of reserves includes all non-development land use designations, such as beach, estuary, and riparian buffers, plus a mosaic of small, medium and large reserves. The system can mitigate landscape level fragmentation. The Forest Plan allows for boundary adjustments or relocation (within the VCU) of the small reserves as long as the habitat criteria are still met.

This project implements all applicable Forest Plan Standards and Guidelines.

Wildlife Habitat: Species

The NFMA regulations also include the concept of wildlife (vertebrate) species viability, requiring that fish and wildlife habitats be managed to maintain viable populations of species in the planning area. A viable population is defined as having "the estimated numbers and distribution of reproductive individuals to ensure its continued existence is well distributed in the planning area" (36 CFR 219.19).

The Forest Plan contains a comprehensive conservation strategy to assure long-term species viability (Forest Plan FEIS, pages 3-11 through 3-26 and Appendix N). The Forest Plan incorporated project-level standards and guidelines to strengthen species' protection. This project adheres to all of the applicable Forest Plan standards and guidelines. Population viability is not assessed at the project level; however, project-level contributions to the Forest-wide strategy are considered.

Many wildlife species depend on mosaics of unproductive and productive old growth and late successional forest conditions. The conservation strategy provides a network of old growth reserves to provide for these species. Connections, or corridors, between these reserves are an important component in the conservation strategy adopted by the Forest Plan (Forest Plan FEIS, 1997). The maintenance of the corridors is important to minimize isolation and decline of wildlife species associated with the old growth blocks. Low elevation passes, beach fringe, and stream corridors provide natural connections between forested blocks and are important areas for migrating and dispersing wildlife. Corridors can be protected by not harvesting within them or by managing the matrix of habitat between the reserves (Suring et al., 1992). Both reserves and corridors are components of the conservation strategy (Forest Plan ROD, page 32).

Beach, estuary and riparian buffers can all serve as travel corridors for wildlife, providing both unique habitat and a forest interface with the marine environment. Riparian areas often support large trees and some of the most highly productive old growth stands. The 1,000 foot beach buffer serves many functions: providing effective landscape linkages between habitat reserves, protecting long-term eagle habitat capability, buffering the primary beach fringe from windthrow (Hodges 1982; Harris 1989), maintaining a functional interior forest condition within the primary

beach fringe (Concannon 1995), and sustaining habitat for goshawks (Iverson et al., 1996). Together, the beach and riparian habitat management features and the mapping of the small old growth reserves represent a substantial response to the landscape linkage element of conservation planning and significantly contribute to the management of the overall matrix of habitat reserves.

The risk of genetic or species loss is higher if the structure, composition and/or the function of the habitats are compromised. An example of compromise might be fragmentation, due to timber harvest or windthrow, of large blocks of suitable habitat into smaller, more isolated blocks that separate small populations of wildlife species from one another.

The location, density, and use of roads also have an effect on the quality of wildlife habitat security for certain species. Roads can affect dispersal patterns for low mobility species like invertebrates, amphibians, and some small mammals. Roads can increase human access to game and fur bearing animals, including wolves.

Affected Environment

The Cholmondeley Project Area is in the southeast part of the North Central Prince of Wales Island Biogeographic Province #14 (Forest Plan FEIS, 1997). Between 1954 and 1995, 24 percent of the old-growth forest has been harvested in this ecological province (Forest Plan FEIS, 1997). Approximately 132 acres of old-growth forest was harvested in the project area. About one third of the project area, 17,659 acres, is classed as productive old-growth (POG) forest. This includes about 6,487 acres of high-volume, 8,987 acres of medium volume, and 2,185 acres of low volume strata. Two thirds of the project area are designated as "other."

The natural distribution of productive old-growth forest on the Cholmondeley Project Area is patchy and fragmented by muskegs, fens, scrub-shrub wetlands, forested wetlands, alpine shrub lands, lakes and ponds (Figure 2-1 and Table 3-24, Alt. 1). Five blocks of old-growth forest are larger than 1,000 acres. These blocks are located in the Sunny Cove, Monie Lake and Saltery Cove watersheds, and along West Arm, Cholmondeley Sound.

The harvest prescriptions for the Cholmondeley Project all retain some of the original stand components. Safe snags and 10 percent of the overstory would be retained in clearcuts. Two-age and uneven-age systems are used to varying extents in each alternative. These systems are expected to maintain some of the original old-growth forest legacy. Landscape level fragmentation is limited by the system of old-growth reserves, non-development LUDs, and beach, estuary and riparian buffers (Forest Plan ROD, page 32).

Wildlife species dependent on large, contiguous tracts of old-growth forest, such as marten, Prince of Wales flying squirrel and the Queen Charlotte goshawk, are negatively affected by the reduction of interior habitat and disruption of travel corridors between quality habitats. Interior-dependent species usually require a minimum of 300 feet from an edge (Forest Plan FEIS, page 3-24). Therefore, to be effective, corridors must be more than 600 feet wide. The Tongass National Forest Land and Resource Management Implementation Policy Clarification (August 1998) states, "Because more information is needed regarding this issue, a minimum corridor width of 1,000 feet of productive old growth, comparable to the Forest Plan beach

buffers that are also intended to provide connectivity, should be retained to facilitate movement and dispersal between old growth reserves." The area north of Monie Lake and south of Trollers Cove is an important travel corridor for wildlife species.

Direct and Indirect Effects

Alternatives 2, 3, and 5 would harvest the greatest percentage of POG in the Cholmondeley Project Area (Table 3-22). Alternative 4 would harvest the next largest percentage of POG, leaving intact the POG on the north side of West Arm and north of Monie Lake. Alternative 7 would harvest the least POG.

Table 3-22: Old Growth Harvested by Alternative

	Acres Harvested						
	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7
High Volume Strata	0	531	531	391	531	521	105
(% of strata in PA)		(8)	(8)	(6)	(8)	(8)	(4)
(% of harvested acres)		(35)	(36)	(42)	(35)	(35)	(30)
Medium Volume Strata	0	844	823	509	844	816	210
(% of strata in PA)		(9)	(9)	(6)	(9)	(9)	(3)
(% of harvested acres)		(56)	(55)	(54)	(56)	(55)	(60)
Low Volume Strata	0	136	135	41	136	149	40
(% of strata in PA)		(6)	(6)	(2)	(6)	(7)	(3)
(% of harvested acres)		(9)	(9)	(4)	(9)	(10)	(10)
Total POG	0	1,511	1,489	941	1,511	1,486	355
% POG harvested	0	(9)	(9)	(5)	(9)	(8)	(3)
(17,659 POG acres in PA)							

PA = Project Area
High Vol. Strata in PA = 6,487 acres
Med. Vol. Strata in PA = 8. 987 acres
Low Vol. Strata in PA = 2,185 acres
Other acres = 35,113 acres

Table 3-22 shows the percentage of the high, medium, and low volume strata harvested for each alternative.

Timber harvest in the Cholmondeley Project Area generally takes place in areas of consolidated commercial forest. Since the project area is naturally fragmented, the areas of proposed harvest coincide with the larger blocks of old-growth forest, which compounds habitat fragmentation. Alternatives 2, 3, 5 and 6 have similar fragmentation effects (Tables 3-23 and 3-24). The number of patches greater than 1,000 acres would decrease in these alternatives and the average patch size would decrease. There would be an increase in the number of patches in the smallest size class. Under Alternatives 2, 3 and 5, the total area in the small patch size increases (Table 3-22). The difference in the number of patches between alternatives in the middle size classes is negligible.

The number of old-growth forest patches in the largest size class would not change from current conditions under Alternative 4, although the total area would decrease. This equates to a decrease in average patch size. The number of patches in the smallest size class would increase (Table 3-22).

Alternative 7 will have the least impacts because of the location of the OGRs. It better maintains the component of the largest contiguous patches of old growth left in each watershed.

Table 3-23: Number of Old-growth Patches by Size Class in Each Alternative

Patch size (acres)	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7
0-25	117	194	193	179	194	193	128
26-100	34	35	34	35	35	35	34
101-500	12	12	12	11	12	12	13
501-1,000	3	6	6	4	6	6	3
1,000+	5	4	4	5	4	4	5

Table 3-24: Acres of Old Growth by Patch Size Class and Average Patch Size for Each Alternative

Patch Size (acres) (Average patch size)	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7
0-25	1,579	1,799	1,793	1,643	1,799	1,793	1,332
(Average patch size)	(11)	(8)	(8)	(9)	(8)	(8)	(10)
26-100	2,199	2,189	2,202	2,087	2,189	2,202	1,481
(Average patch size)	(45)	(45)	(46)	(45)	(45)	(46)	(44)
101-500	2,903	3,271	3,267	2,431	3,271	3,267	2,238
(Average patch size)	(194)	(218)	(218)	(203)	(218)	(218)	(172)
501-1,000	2,109	3,390	3,444	2,588	3,390	3,444	2,060
(Average patch size)	(703)	(678)	(689)	(647)	(678)	(673)	(687)
1,000+	11,151	7,545	7,554	9,529	7,545	7,552	10,620
(Average patch size)	(2,230)	(1,886)	(1,889)	(1,906)	(1,886)	(1,888)	(2,124)

Forest fragmentation is greatest in Alternatives 2, 3, and 5. Alternative 7 would result in the least forest fragmentation and in the least amount of change to the number and size of the patches of old growth forest that currently exist in the Cholmondeley Project Area. The largest unit is 105 acres in size and it is harvested in all action alternatives except Alternative 7 (Table 3-25). Increased forest fragmentation, the reduction of old-growth forest patch size, is generally considered detrimental to species that require old-growth forest habitat for survival and reproduction. Fragmentation tends to isolate old-growth dependent species of low mobility, thereby increasing their susceptibility to local population extinction. Other species may become more susceptible to predation or nest parasitism.

Table 3-25: Harvest of Productive Old Growth on the Cholmondeley Project Area

	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7
Number of units	0	44	43	26	44	43	13
Size range (acres)	0	3-105	3-105	5-105	3-105	3-105	9-55
Acres harvested	0	1,511	1,489	941	1,511	1,486	355
1954 POG harvested (%)	0	9	9	5	9	8	3
Miles of road construction*	0	0	5	19	26	18	0

SOURCE: GIS database
* Includes temporary road construction

Old-growth Reserves

The Cholmondeley Project Area contains one small old-growth habitat reserve (OGR) in each VCU (Figure 3-11). The OGRs in three VCUs are combined to form a medium reserve. The Forest Plan provides for evaluation and adjustments of OGRs during project level environmental analysis to meet or exceed the minimum reserve criteria (Forest Plan, page 3-82 and Appendix K, page K-2). Small reserves should include at least 16 percent of the area of each VCU; 50 percent of this area should be productive old-growth forest (Forest Plan, Appendix K, page K-1).

Three OGR matrix alternatives are shown in this FEIS. Alternative 1 displays the Forest Plan OGRs. Alternatives 2, 3, 4, 5, and 6 include OGRs as modified by the ID Team. These modifications are based on Forest Plan Standards and Guidelines, knowledge of the project area, and the need to make the boundaries easy to map and locate on the ground. An interagency team of biologists from the Forest Service, Alaska Department of Fish and Game, and U.S. Fish and Wildlife Service evaluated the OGRs in the project area. The reserves were assessed for size, spatial location, connectivity, and biological function (Biodiversity and Old Growth Report, project file). The Interagency OGR recommendations are included in Alternative 7. All the OGR modifications are shown in Figure 3-11 and summarized in Table 3-26.

Sunny Cove (VCU 675)

Forest Plan OGR (Alternative 1)

The size of the small OGR in Sunny Cove, as mapped in the Forest Plan, is 2,545 acres with 1,083 acres of POG. The current OGR meets other Forest Plan requirements because it does not contain second-growth timber stands or roads, it is more circular than linear, and it includes a portion of the largest contiguous patch of old growth in the VCU.

ID Team OGR (Alternatives 2, 3, 4, 5, and 6)

For ease of mapping, the east boundary was moved to Sunny Creek. A portion of the POG on the northeast side of Sunny Creek would be protected through the Forest Plan

Standards and Guidelines for riparian buffers. The north and west boundaries of this OGR would be extended beyond the VCU boundary (Figure 3-11) to provide better wildlife connectivity between Sunny Cove and the McKenzie Inlet area. Field reviews identified this area as having very high MMI soils, which made harvest Units 675-038 and 675-039 unsuitable for timber harvest and removed approximately 1.4 MMBF from the timber base. Previous timber harvest and roads have modified wildlife habitat in the McKenzie Inlet Roadless area. Extending the north and west boundaries would increase the size and POG in the OGR. This size increase has limited effect on this or future timber harvests since the areas are not suitable for harvest due to steep slopes and very high MMI soils.

The ID Team medium includes a portion of this VCU. The medium was overlapped into this VCU in order to pick up some high volume POG to meet the Forest Plan recommendation of 2,500 acres of POG. By attaining this recommendation, the resulting medium OGR is significantly larger (13,552 acres) than the 10,000 acres recommended in the Forest Plan. This medium has 6,504 acres of POG. It does meet the high volume POG acres of 2,500 acres. It also includes some of the largest contiguous patch of old growth in the VCU, habitat that may be used for nesting by murrelets and/or goshawks, as well as for some important deer winter range. The location of the IDT medium in this VCU does not affect any planned timber units in the Sunny Creek Watershed.

Interagency OGR (Alternative 7)

The Interagency OGR in this VCU encompasses nearly all of the east side of Sunny Creek. As a result, it affects the entire planned unit pool in this area, with 304 unit acres being dropped. The location is circular and includes habitat for nesting murrelets and goshawks, important deer winter range, and a good portion of the largest contiguous patch of old growth in the VCU. The small OGR in this VCU is only necessary if the decision maker does not choose the Interagency medium OGR. If the Interagency medium OGR is chosen, there is no need for a small reserve in either VCU 616 or 675.

Table 3-26: Comparison of Forest Plan OGR to Proposed Sunny Cove OGR Alternatives

Sunny Cove OGR Alternatives	Total Acres	POG Acres	Acres/Volume Deferred
Forest Plan (1997) (Alternative 1)	2,545	1,083	0
Required (minimum) OGR	1,113	557	0
Difference	+1,432	+526	0
ID Team Proposal (Alternatives 2, 3, 4, 5, and 6)	3,183	1,276	55 ac./1.4 MMBF
Required (minimum) OGR	1,113	557	0
Difference from Required	+2,070	+719	
Interagency Proposal (Alternative 7)	1,287	886	304ac./8.2MMBF
Required (minimum) OGR	1,113	557	0
Difference from Required	+174	+329	

Table 3-27: Appendix K Criteria for Sunny Cove OGR (VCU 675)

Criteria	Forest Plan	ID Team	Interagency
800 acres POG	No	Yes	Yes
Goshawk Habitat	Yes	Yes	Yes
Murrelet Habitat	Yes	Yes	Yes
Deer Winter Range	Yes	Yes	Yes
Circular	Yes	Yes	Yes
Largest Patch	Yes	Yes	Yes
Marten Habitat	Yes	Yes	Yes
Connectivity	Yes	Yes	Yes

Monie Lake (VCU 616)

Several options were considered to adjust this OGR (Table 3-28) to meet all the characteristics in the Forest Plan, Appendix K criteria (Biodiversity and Old Growth Report, project file).

Option A would drop the north and south ends of the OGR currently in beach fringe and extend the boundaries west, encompassing Units 616-011, 616-012, 616-013, and 616-021. Approximately 246 acres and 6.2 MMBF would be removed from the available timber base. This option includes high quality deer winter range and maintains connectivity between the medium OGR and beach buffer. It also has high nesting habitat potential for goshawk and marbled murrelet.

Options B and C are similar to Option A because they would trade the areas in beach fringe for an area around Monie Lake (Figure 3-11). However, the "new" OGRs would be more linear than Option A and would extend to the medium OGR. Options

B and C contain valuable deer winter range and nesting habitat for goshawks and marbled murrelets. These options would decrease the size of the OGR and slightly decrease the area of POG, compared to Option A. Under Option B, the OGR would be slightly larger than the minimum Forest Plan requirements, while the Option C OGR would be smaller than the required size. In both options, the acres of POG would be less than in Option A, but would still be higher than the minimum required in the Forest Plan. Options B and C would foreclose on 5.1 and 5.8 MMBF of timber on 215 and 210 acres, respectively.

Option D is similar to Option C but would retain less of the area within the beach fringe. The total area of this proposed OGR would be less than Forest Plan requirements but the area of POG would meet the requirements. This option would foreclose on 1.6 MMBF of timber on 60 acres.

Forest Plan OGR (Alternative 1)

This OGR currently meets the acreage requirements but is lacking in other characteristics (Forest Plan, Appendix K) of the small OGRs. The OGR is linear, has few south facing slopes of POG, little habitat for goshawk or marbled murrelet nesting, and does not contain the largest contiguous patch of POG in the watershed. All of the POG in this reserve is within the beach buffer.

ID Team OGR (Alternatives 2, 3, 4, 5, and 6)

The ID Team modified Option D by adjusting the OGR boundary around the harvest units and retaining the original OGR within the beach fringe (Fig 3-11). The adjusted OGR would be 1,825 acres with 832 acres of POG. Approximately 39 percent of the POG would be in the high volume strata. At its narrowest point, this corridor (the lake buffer around Monie Lake) is 250 feet wide and does not provide any interior habitat, as the width is less than the 1,000 feet recommended in the Tongass National Forest Land and Resource Management Plan Implementation Policy Clarification (August 1998). This would retain the connection between the beach reserve and the medium reserve in VCUs 617 and 676. This corridor contains some of the important goshawk and murrelet nesting habitat and deer winter range on the south-facing, low-elevation slopes present in the Monie Lake Watershed. It also includes a portion of the largest, contiguous patch of POG in the VCU. In addition, Alternatives 4 and 5 would construct a road that bisects the corridor at the west end of Monie Lake.

The south boundary would exclude Units 616-011, 616-012, 616-013, and 616-021. The ID Team believes this option best meets the old-growth reserve criteria within the multiple-use concept. Though the OGR would be more linear than circular, it would provide quality POG at the preferred Forest Plan level (800 acres) and maintain connectivity between the beach fringe and the medium OGR. The POG that is neither in the OGR nor proposed for harvest within this project would partially compensate for the linear shape of the OGR.

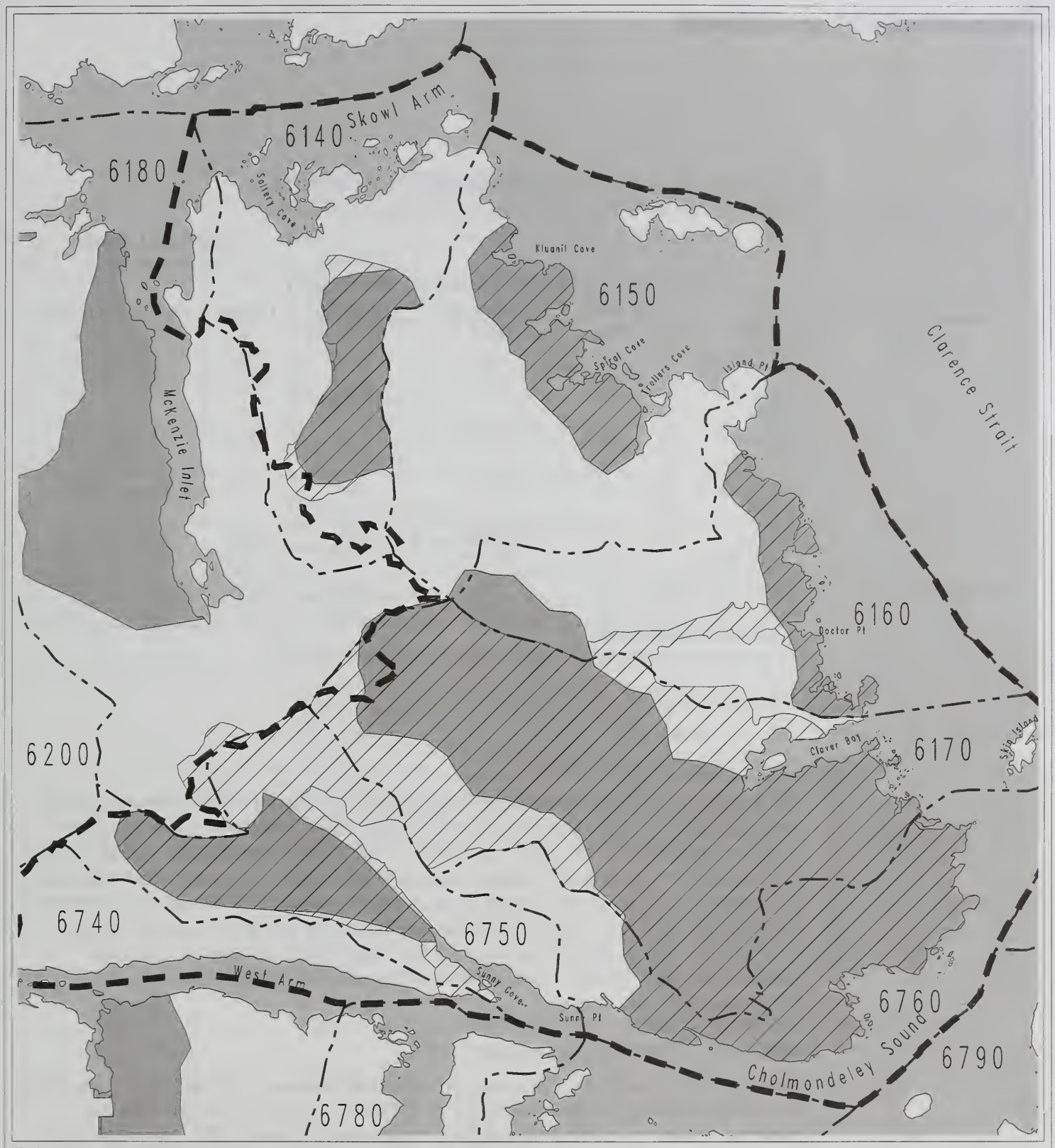
Interagency OGR (Alternative 7)

The new Interagency OGR for Alternative 7 is a revised version of the Interagency alternative discussed in the Draft EIS (Option A). The revised OGR encompasses the entire Monie Lake Watershed and all the units planned there. It drops 591 acres from the planned unit pool. The small reserve in this VCU would only be needed if the

decision maker does not select the Interagency medium reserve. The new location is much more circular than the ID Team OGR, includes all or most of the largest contiguous patch of old growth in the VCU, habitat that qualifies as nesting habitat for murrelets and goshawks, and important deer winter range. The inclusion of the Monie Lake Watershed OGR (combined with the OGR in VCU 675) with the medium allows for the high volume POG acreage requirements for the medium to be met without making the medium overly large. The interagency biologists' medium is 12,142 total acres in size, with 5,143 acres of POG, and 1,564 acres of high volume POG. The Interagency medium reserve does not meet the minimum 2,500 acres of high volume POG recommended in the Forest Plan.

Table 3-28: Monie Lake OGR Comparison

Monie Lake OGR Alternatives	Total Acres	POG Acres	Acres/Volume Deferred
Forest Plan (1997) (Alternative 1)	1,264	642	0
Required (minimum) OGR	1,002	501	0
Difference	+262	+141	0
Interagency Proposal – (Alternative 7) Option A	1,256	840	591 ac./7.6 MMBF
Difference from Required	+254	+339	
ID Team Proposal – (Alternatives 2-6) Modified Option D	1,825	832	0
Difference from Required	+823	+331	
Additional Options Considered			
Option B	1,077	635	215 ac./5.1 MMBF
Difference from Required	+75	+134	
Option C	921	623	210 ac./5.8 MMBF
Difference from Required	-81	+122	
Option D	802	512	60 ac./1.6 MMBF
Difference from Required	-200	+11	



Saltwater

TLMP Old Growth Reserve

Alternative Old Growth Reserves (Unit Pool 2 thru 6)

VCU Boundary

Project Boundary

2 0.0 2 Miles

CHOLMONDELEY FEIS

Old Growth Reserves

Figure 3-11

Table 3-29: Appendix K Criteria for Monie Lake OGRs

Criteria	Forest Plan	Interagency Proposal (Option A)	ID Team Proposal (Modified Option D)	Additional Options Considered		
				Option B	Option C	Option D
800 ac. POG	No	Yes	Yes	No	No	No
Goshawk Habitat	No	Yes	Yes	Yes	Yes	Yes
Murrelet Habitat	No	Yes	Yes	Yes	Yes	Yes
Deer Winter Range	No	Yes	Yes	Yes	Yes	Yes
Circular	No	Yes	No	Yes	Yes	Yes
Largest Patch	No	Yes**	Yes	Yes	No	No
Marten Habitat	No	Yes	Yes	Yes	Yes	Yes
Connectivity	Yes*	Yes	Yes	Yes	Yes	Yes

*Connected via the beach buffer only
** Includes the entire patch where the others contain only a portion of the patch

Saltery Cove (VCU 614)

There is an area of encumbered State land along the northern edge of the project area boundary in VCU 614. The area is mostly beach buffer and there is concern that it could be logged when the land is conveyed. Logging this beach buffer would disrupt the connectivity between this reserve and the beach fringe. The state land to the north is designated as general use, which means it could be logged. This area is not listed on the State of Alaska five-year timber sale plan, however, and it is not likely that the state will develop a sale without a Forest Service LTF or road system (personal conversation with Michael Curran, Alaska Department of Natural Resources, Ketchikan, February 7, 2001).

Forest Plan OGR (Alternative 1)

The Forest Plan mapped OGR is located along the east side of Swan Lake. It meets the Forest Plan size requirements for OGR and POG but has 118 acres less than the preferred 800 acres of POG (Forest Plan, Appendix K) (Table 3-30). Approximately 2,387 acres of POG are available in the VCU.

ID Team OGR (Alternatives 2, 3, 4, 5, and 6)

The IDT proposed changes to the OGR in this VCU include extending the southern boundary to connect with the OGR in the McKenzie Inlet watershed, and the northern boundary to the encumbered State land. This OGR would be 1,880 total acres in size with 636 acres of POG.

Interagency OGR (Alternative 7)

The interagency biologists' preferred OGR would include most of the Swan Lake watershed. This reserve would be 1,490 total acres with 839 acres of POG.

Table 3-30: Saltery Cove OGR Comparison

Saltery Cove OGR Alternatives	Total Acres	POG Acres	Acres/Volume Deferred
Forest Plan (1997)	1,826	682	0
Required (minimum) OGR	1,156	578	0
Difference	+670	+104	
ID Team Proposal	1,880	636	0
Difference from Required	+724	+58	
Interagency Proposal	1,490	839	216 ac./6.5 MMBF
Difference from Required	+334	+261	

Table 3-31: Appendix K Criteria for Saltery Cove OGR

Criteria	Forest Plan	ID Team	Interagency
800 acres POG	No	No	Yes
Goshawk Habitat	Yes	Yes	Yes
Murrelet Habitat	Yes	Yes	Yes
Deer Winter Range	Yes*	Yes*	Yes
Circular	No	No	Yes
Largest Patch	No	No	Yes
Marten Habitat	Yes	Yes	Yes
Connectivity	Yes	Yes	Yes

* Not Prime Deer Winter Range

Table 3-32: Summary of IDT Proposed Changes to Small Old-growth Reserves for Alternatives 2, 3, 4, 5 and 6

Small Reserve Area (acre)	Value Comparison Unit 614	615	616	674*	675
Size Required	1,156	1,554	1,002	2,586	1,113
Actual Size (Forest Plan)	1,826	1,940	1,264	4,061	2,545
Proposed Size (IDT)	1,880	same	1,825	same	3,183
Required POG	578	777	501	1,428	557
Actual POG (Forest Plan)	682	970	642	1,702	1,083
Proposed POG (IDT)	636	same	832	same	1,276

* The OGR for VCU 674 is located outside of the Cholmondeley Project Area boundary.

VCU 615

Forest Plan OGR (Alternative 1)

The Forest Plan requires that it be 1,554 acres in size with 777 acres of POG. As mapped, the Forest Plan indicated the size as 1,987 acres with 1,023 acres of POG.

ID Team OGR (Alternatives 2, 3, 4, 5, and 6)

The ID Team did not make any changes to this OGR.

Interagency OGR (Alternative 7)

This reserve was slightly modified by the interagency team of biologists. The boundary of the reserve was altered to make the OGR more circular. This OGR is 1,728 acres in size with 979 acres of POG.

Medium Reserve

VCUs 616, 617, and 676

VCU 676 is included in the medium reserve in all alternatives. No changes were made in this VCU.

ID Team OGR (Alternatives 2, 3, 4, 5, and 6)

The ID Team also altered the medium reserve to meet Forest Plan standards that require a medium reserve to be 10,000 acres in overall size, with 5,000 acres of POG, and a recommendation that 2,500 acres be high volume POG. In this version, the reserve was moved to the west to include the Sunny Creek Watershed, which would forego the need for a small reserve in VCU 675. This reserve is 23,552 acres, with 6,504 acres of POG and 2,502 acres of high volume POG. In order to meet the Forest Plan recommended 2,500 acres of high-volume POG, the size of this reserve is 13,552 acres over the 10,000-acre required medium reserve size. Thus, the ID Team medium reserve meets or exceeds the Forest Plan requirements for a medium reserve.

Interagency OGR (Alternative 7)

The medium reserve was changed to meet or exceed the minimum Forest Plan requirements. The Interagency medium reserve encompasses all or portions of VCUs 616, 617, and 676. This reserve is 12,142 acres in size, contains 5,143 acres of POG, and has 1,564 acres of high volume POG. The Forest Plan suggests that medium reserves have 2,500 acres of high volume POG. The Interagency reserve is 936 acres short of the Forest Plan recommendation for high volume POG. Despite falling short of the Forest Plan recommended acreage, the biologists recommend this reserve location. To achieve the suggested high volume acres, the overall size of the reserve would have to be drastically increased and would include vast amounts of "empty" acres. The location of the medium reserve indicates that a small reserve in VCU 616 is not needed.

The small reserve in VCU 615 was slightly modified. The interagency proposed OGR size is 1,728 acres with 979 acres of POG. This OGR was modified by moving the boundary from a basically linear beach buffer OGR to a more circular and inland OGR, which better meets the criteria for OGRs, as listed in Appendix K of the Forest Plan. It still includes habitat that may be used by marten and/or goshawks, as well as potential deer winter range. The change in the boundary also increased the connectivity with the OGR in Saltery Cove via a mapped corridor. The changes in this VCU do not affect any planned units for the Cholmondeley EIS.

Corridors

Maintaining wildlife habitat connectivity between the medium and small old-growth reserves would contribute to the effectiveness of the reserves by fostering population (and genetic) interchange of old-growth species between the reserves. Corridors, if wide enough, may also provide additional predator escape or avoidance options. The medium reserve in VCUs 617, 675, and 676 is connected to the small reserves in VCUs 616 and 615 by beach buffers. Unit 615-025 is located in a wildlife corridor between Clarence Strait and Trollers Cove. Ten percent of the overstory would be left throughout the unit and additional trees would be left in the western half of the unit. Riparian buffers would also provide important forested connections between the old-growth reserves.

Road Density

The project area includes 97 percent of Wildlife Analysis Area (WAA) 1212, 43 percent of WAA 1213 and 1 percent of WAA 1214. No roads are currently within the project area. However, WAA 1214 does have 154 miles of road outside the project area and a road density of 1.3 miles per square mile (mi/mi^2) (Table 3-33). Alternatives 3, 4, 5, and 6 would construct 5, 18, 26, and 18, miles of road (including temporary roads), respectively. None of the roads built under any of the alternatives would connect to the main road system of Prince of Wales Island. The three planned sections of road systems would not interconnect in the project area.

The 1.0 miles of road proposed in WAA 1214 under Alternatives 4 and 5 would not appreciably increase the road density in the WAA (Table 3-33). Road density in WAA 1212 would increase to 0.4 mi/mi^2 and to 0.1 mi/mi^2 in WAA 1213 under Alternative 5, which constructs most of the road in the project. Any other action alternative selected would result in a road density per WAA less than that for Alternative 5.

Within the project area, road density would be 0.06 mi/mi^2 for Alternative 3 and 0.3 mi/mi^2 for Alternative 5. Road density for Alternatives 4 and 6 would be 0.2. mi/mi^2. Under all alternatives, the roads in all watersheds would be closed within three to five years of sale completion (after silvicultural evaluation and potential salvage opportunities) so open road density would be zero. Roads would still be open to bicycle and pedestrian use.

Table 3-33: Road Miles and Density in Each WAA on the Cholmondeley Project Area by Alternative

Miles of Road (Road Density)	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7
WAA 1212 (mi/mi^2)	0 (0)	0 (0)	0 (0)	12.0 (0.2)	20.0 (0.4)	13.0 (0.2)	0 (0)
WAA 1213 (mi/mi^2)	0 (0)	0 (0)	5.0 (0.1)	5.0 (0.1)	5.0 (0.1)	5.0 (0.1)	0 (0)
WAA 1214 (mi/mi^2)	154.0 (1.3)	154.0 (1.3)	154.0 (1.3)	155.0 (1.3)	155.0 (1.3)	154.0 (1.3)	154.0 (1.3)
Total Cholmondeley Project Area Road Density	0	0	.06	0.2	0.3	0.2	0

Cumulative Effects

The Cholmondeley Project is the only activity that the Forest Service has planned in the area for the foreseeable future. As a result all the effects stated in this document are the only reasonable foreseeable cumulative effects for the project area. The area surrounding the Cholmondeley project is either saltwater or roadless area. The land to the west, the McKenzie Inlet roadless area, is currently owned and managed by the Forest Service. At this time the Forest Service has no planned activities in the McKenzie Inlet Roadless Area. The activities that the Forest Service could legally do would consist of salvage only opportunities and these would have to occur within 1200 feet of the currently existing road system in McKenzie inlet. This road system is located in the southeast portion of the watershed. The Cholmondeley project area is surrounded by saltwater to the north, south and east.

Conclusions

Alternative 7, the Interagency OGR proposal, is the biologically preferred alternative.

The existing, Forest Plan OGRs in the Cholmondeley Project Area meet minimum size requirements, except for the medium, but do not meet many of the other criteria for composition as specified in Appendix K. Compliance is particularly poor for the requirement for inclusion of the largest remaining blocks of contiguous old growth, which is important for deer winter range and rare features. The interagency recommendation improves compliance with these standards while affecting the least amount of acreage. The interagency reserves are consistently smaller than those mapped in the Forest Plan and those proposed by the ID team. The biologists' medium OGR is one third the size of the OGR recommended by the ID team. Overall the interagency teams recommended reserve makes the most efficient use of the acreage while protecting the most important habitat for fish and wildlife as defined in the Forest Plan.

Wildlife Species: Management Indicator Species

This section evaluates the potential effects of harvesting timber and building roads and log transfer facilities on key wildlife species within the project area. These species include the Sitka black-tailed deer, gray wolf, marten, hairy woodpecker, brown creeper, Vancouver Canada goose, black bear, river otter, bald eagle and red-breasted sapsucker. The Prince of Wales flying squirrel is included as a species of concern. Brown bear, mountain goat, and red squirrel are not included in the analysis because they do not occur on Prince of Wales Island. Most the bald eagle nests were protected with the inclusion of the mandatory 1,000-foot beach buffer in the Forest Plan. Any planned road construction or reconstruction that will occur within a half mile of any eagle nest will follow all current Forest Plan Standards and Guidelines. Black bears are highly adaptable and can tolerate moderate disturbances, such as habitat alterations, as long as basic requirements for food and cover are satisfied (Lawrence 1979). River otters concentrate along intertidal zones, the adjacent beach fringe and streamside habitats. Current Forest Plan Standards and Guidelines protect all of these habitats.

Sitka Black-tailed Deer (*Odocoileus hemionus sitkensis*)

During severe winters, Sitka black-tailed deer are dependent on low-elevation, high-volume old-growth stands. These stands provide thermal cover and maintain forage availability through winter (Forest Plan FEIS, page 3-367). Old-growth patches of 1,000 acres or larger are believed to provide optimum deer habitat (USDA Forest Service, 1991a). Fragmentation of deer habitats may increase deer vulnerability to predators, especially in winters of heavy snowfall (Forest Plan FEIS, page 3-403). WAA 1212 has experienced less than a 1 percent decline in deer habitat capability since 1954. WAA 1213 has experienced a 1 percent decline and WAA 1214 has experienced an 18 percent decline in deer habitat capability since 1954 (Forest Plan, Appendix #12 to Appendix N).

The project area contains about 12,206 acres (23 percent of the project area) of deer winter range, while approximately 40,566 acres (77 percent of the project) area does not qualify as deer winter range. High-quality deer habitat is generally located in two watersheds, Monie Lake and Sunny Cove, and along the north shore of West Arm, Cholmondeley Sound. In the short term the open canopy that results after clear cutting is more abundant in understory plant species but provides no snow interception in the winter. The understory of the clearcuts tends to be brushy, which limits forage production, and the plants which do grow in the clearcuts tend to be less nutritious than the same species growing in the old growth forest. Forage in the clearcuts is unavailable in the winter when snow levels are deep. This increased availability of forage is temporary however and may only last from 15-25 years. After this period the canopy begins to close over and shade out the understory forage species. Once the canopy has closed over completely the area provides little to no forage availability, it may however provide some thermal cover in the winter. This canopy closure stage may last for a hundred years or more.

Due to the naturally highly fragmented nature of the landscape within the Cholmondeley Project Area the wildlife in the area may be more dependent on the large contiguous patches of old growth in the Swan Lake, Monie Lake and Sunny Cove watershed.

In WAA 1212, deer habitat is expected to be reduced by 9 percent over the next 100 years (Table 3-34). Since most of WAA 1212 is in the project area, we can attribute this predicted decline to the project. A 5.5 percent decline would be expected in WAA 1213 and a 19 percent decline in WAA 1214. Within the project area there will be a predicted decline in deer habitat capability of 13 percent.

The current estimated deer population (run with predation and at 125 deer per square mile) for the Cholmondeley project area is 1,052. Alternatives 2, 3 and 5 results in a decline to 1,024 (down 3%) and Alternative 4 will cause the deer numbers to drop to 1,030, a 2% drop. Alternative 6 should result in deer numbers similar to Alternative 4 and Alternative 7 should have the least impact in deer numbers.

Table 3-34: Predicted Deer Habitat Capability and Population Density Through 100 Years in Each Wildlife Analysis Area of the Cholmondeley Project

	Deer Habitat Capability			Decline (%)			Deer Density (deer/mi^2)	
WAA	1954	1995	2095	1954-1995	1995-2095	1954-2095	1995	2095
1212	952	947	862	<1%	9%	10%	19	17
1213	838	829	792	1%	5.5%	6.5%	21	20
1214	1867	1530	1240	18%	19%	33-37%	13	11

With only 13 deer/mi^2, WAA 1214 is currently below the Forest Plan-recommended deer population density of 17 deer/mi^2. WAAs 1212 and 1213 are both currently above the recommended density with 19 and 21 deer/mi^2, respectively (Table 3-34). In WAA 1214, deer density would drop to 11 deer/mi^2 in the next 100 years. Since this project does not harvest timber in WAA 1214, the decline in deer habitat would be attributed to previous and on-going habitat alteration in other areas of the WAA. In WAA 1212, deer density would be at the minimum recommended threshold and WAA 1213 would remain above the Forest Plan standard.

Alexander Archipelago Wolf (*Canis lupus*)

The Alexander Archipelago wolf is a subspecies of the gray wolf and an important furbearer. Two viability concerns exist for wolves: 1) a short-term concern involving the amount of trapping and hunting of wolves, and 2) a long-term concern involving reductions in deer habitat capability. Wolf populations are threatened when road densities in a WAA exceed 0.7 mi/mi^2 or when deer populations drop below 17 deer/mi^2 (USDA 1998b). Open road densities of 0.7 to 1.0 mi/mi^2 or less may be needed to maintain wolf populations in areas where analysis has determined that road access may significantly contribute to wolf mortality (Forest Plan, page 4-116).

Wolf habitat capability is expected to decline relative to the decline in deer habitat capability, since deer are the primary prey of wolves. Implementing any of the action alternatives would result in a reduction in deer habitat capability (Table 3-34). After the completion of the Cholmondeley project, deer densities in WAAs 1212 and 1213 would remain at or above the number recommended in the Forest Plan to sustain both wolf and human deer harvest demands. In WAA 1214, the deer population is already below that recommended by the Forest Plan to sustain predation by both wolves and

humans. The densities are predicted to drop even lower, but not as a result of this project.

Road closures would mitigate the potential wolf harvest; however, even closed and unmaintained roads provide trails and easier access than is currently available. The design of the alternatives and the OGR strategy will help sustain stable wolf population numbers.

Marten (Martes americana)

Marten prefer old-growth forest stands with more than 40 percent canopy closure. The diversity of understory plants and structures typical of old-growth forests supports a variety of marten prey. Downfall, stumps, and slash provide access routes allowing marten to hunt below deep snow. Overstory cover provides marten with protection from bird predators. The fallen logs, decadent trees, and large snags in old-growth forests provide resting and denning sites for marten (Suring et al., 1992; Strickland and Douglas, 1987).

There are currently 6,309 acres of high value marten habitat representing about 12 percent of the Cholmondeley Project Area. The largest patches of marten habitat exist in the Saltery Cove, Monie Lake, and Sunny Cove watersheds, and along West Arm, Cholmondeley Sound. Optimum habitat use occurs when patches of preferred habitat are greater than 180 acres (USDA, 1991; 3-209). Use declines as patch size decreases, and patches less than 10 acres are not used (USDA, 1991a). There are currently 23 patches of habitat greater than 101 acres in the Cholmondeley Project Area. Under all action alternatives, the number of patches in the smallest size class (0-25 acres) increases while the average patch size drops below 10 acres, essentially making this habitat unavailable to marten. Marten habitat capability has not changed since 1954 because no significant logging, road building, or other development has occurred within the project area. The project area currently contains enough high value habitat to support an estimated population of 58 marten. The Cholmondeley Project is within a high-risk biogeographic province because of the logging and road building activity that has occurred in other areas of the province. The marten Standards and Guidelines for VCUs in high-risk provinces where less than 33 percent of the original forest has been harvested are applied under all alternatives (Forest Plan, page 4-119).

Habitat capability would decline to support 55 marten under Alternatives 2, 3, 5 and 6 and 57 marten in Alternative 4 and 7. This reflects a 5 percent decline for Alternatives 2, 3, 5 and 6 and a 2 percent decline under Alternative 4 and 7. Between 1 and 3 percent of the high-value marten habitat would be harvested (Table 3-35). Alternative 6 will have similar but slightly less of an effect on marten as Alternative 4. Of all the action alternatives, Alternative 7 should have the least impact to marten habitat and populations.

Table 3-35: Marten Habitat Capability

	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7
Habitat Capability	58	55	55	57	55	55	57
Harvested Habitat Acres	0	1507	1484	939	1507	1486	351
(%)	(0)	(3)	(3)	(2)	(3)	(3)	(1)
Marten population decline (%)	0	5	5	2	5	5	2

Marten densities begin to decrease when road densities exceed 0.2 mi/mi^2, and could be reduced by as much as 90 percent when road densities approach 0.6 mi/mi^2 (Suring et al. 1992). Road densities in WAA 1212 will be 0.2 mi/mi^2 under Alternative 4 and 0.4 mi/mi^2 under Alternative 5 and 0.2 and zero under Alternatives 6 and 7 (Table 3-28). Therefore, we would expect marten populations to decline during and after timber harvest under all action alternatives except Alternative 7. This decline may continue at a slower pace after timber harvest, due to the fact that all roads on the project area will be closed, or stabilize at a lower population density. The road density in WAA 1213 would be 0.1 mil/mi^2 under Alternatives 3, 4, and 5 during harvest and closed following harvest. This road density is less than 0.2 mi/mi^2, and, as a result, a decline in marten populations is not expected. The road densities for Alternative 6 will be 0.1. Alternative 7 has no roads. Road density in WAA 1214 is 1.3 mi/mi^2, but activities proposed in this project do not increase road density in this WAA. The 0.9 mile of road proposed in Alternatives 4 and 5 does not connect to the rest of the road system in WAA 1214. Over the project area, road density would have limited effects on marten populations. Localized populations, however, could experience higher levels of trapping, especially where roads cross riparian areas. This impact would be in addition to the predicted 5 and 9 percent declines in habitat capability.

Hairy Woodpecker (*Picoides villosus*)

The hairy woodpecker is a primary cavity nester and prefers stands of older western hemlock and Sitka spruce with a large snag and decadent tree component. Primary cavity nesters excavate tree cavities which other birds and mammals use after they abandon them. Patches larger than 500 acres of this type of habitat receive optimum use (Forest Plan FEIS, page 3-357). There are currently eight such patches in the project area.

Habitats used during the winter are below 1,500 feet in elevation and are characterized by high, dense canopy cover provided by large, widely spaced trees. High quality habitat for the hairy woodpecker is concentrated mainly in the Saltery, Monie Lake and Sunny watersheds, and West Arm, Cholmondeley Sound.

At the stand level scale the any amount of habitat harvested will reduce the habitat capability fir hairy woodpeckers. However at the landscape scale this will be a very small portion of the habitat and we do not except to see a large decline in hairy woodpecker habitat capability. Alternative 5, which both logs the entire unit pool and builds the entire planned road, will have the greatest impact on hairy woodpecker habitat. Alternative 7, which harvests the fewest units and builds no road, would have the least impact, of the action alternatives, to the hairy woodpecker.

The hairy woodpecker would likely experience no detrimental effects from this project. The number of patches in the 501 to 1,000-acre size classes increases from the existing condition (Tables 3-21 and 3-22). However, this increase is mainly due to the decrease in the size/number of patches in the larger classes. by implementing Forest Plan Standards and Guidelines for high-value marten habitat (Forest Plan, page 4-119) and for reserve trees (Forest Plan, page 4-117) additional habitat would be retained. Leaving the largest contiguous patch of old-growth timber or a portion of it, in each VCU as an old-growth reserve would help maintain the necessary habitat for hairy

woodpeckers. Based on this information, snag habitat for hairy woodpeckers and other snag-dependent species would be maintained throughout the project area.

Brown Creeper (*Certhia americana*)

The brown creeper is associated with large old-growth trees (high-volume strata) and is most closely associated with high-volume old-growth forest (Forest Plan FEIS, page 3-357). Large diameter trees are preferred because a bird can feed longer on a large tree and capture more prey per visit. Old-growth conifer stands below 1,500 feet in elevation and greater than 20,000 board feet per acre are the preferred habitat. Optimum use occurs in patches of high-volume forests larger than 15 acres (Forest Plan FEIS, page 3-357). In the Cholmondeley Project Area, most of the higher volume old growth occurs in the Sunny Creek and Saltery Cove watersheds and West Arm, Cholmondeley Sound.

At the stand level scale the any amount of habitat harvested will reduce the habitat capability fir hairy woodpeckers. However at the landscape scale this will be a very small portion of the habitat and we do not except to see a large decline in hairy woodpecker habitat capability. Alternative 5, which both logs the entire unit pool and builds the entire planned road, will have the greatest impact on hairy woodpecker habitat. Alternative 7, which harvests the fewest units and builds no road, would have the least impact, of the action alternatives, to the hairy woodpecker.

The brown creeper would likely experience no detrimental changes in habitat. Patches of POG in the 0- to 25-acre size class increase, although the average patch size is below 15 acres, which renders them unusable for brown creepers (Tables 3-21 and 3-22). Patches of POG in the other size classes remain relatively stable and would compensate for decreased average patch size in the smallest size class. In Alternatives 2, 3, and 5, 9 percent of the POG is harvested. Alternative 6 would harvest 8 percent, Alternative 4 would harvest 5 percent, and Alternative 7 would harvest only 3% of the POG (Table 3-22). Alternative 4 would harvest 5 percent of the POG. Implementation of snag and reserve tree Standards and Guidelines, as well as the marten Standards and Guidelines, would mitigate harvest effects on brown creeper (Forest Plan, pages 4-117, 4-119).

Vancouver Canada Goose (*Branta canadensis fulva*)

The Vancouver Canada goose is a relatively non-migratory species. They are unique among the subspecies of Canada geese because they use forested habitat for nesting, brood rearing, and molting (Lebeda and Ratti, 1983). High quality nesting and brood-rearing habitat is associated with low-volume old growth on poorly drained soils, adjacent to small wetlands, lakes, and riparian areas. Beach fringe and estuaries are high quality habitats for Vancouver Canada geese. Hansen (1962) indicated that nesting and brood rearing is probably the most limiting habitat factor. The Vancouver Canada goose reportedly avoid habitat located within 660 feet of an open road (Control Lake FEIS; page 4-53).

Nesting and brood rearing habitats are generally the lower volume timber stands and would likely not be affected by timber harvest; however, they may be impacted by road construction. Forest Plan Standards and Guidelines for waterfowl (Forest Plan, page 4-116), beach and estuary fringe (Forest Plan, page 4-5), and riparian areas (Forest Plan, page 4-55) would help mitigate potential impacts.

Prince of Wales Flying Squirrel (*Glaucomys sabrinus griseifrons*)

The Prince of Wales flying squirrel is associated with old-growth forest and may be genetically distinguished from other flying squirrel populations. Conservation needs of flying squirrels specifically include a 1,600-acre small habitat reserve in each 10,000 acre watershed to sustain habitat that support well-distributed populations capable of interaction across the landscape (Forest Plan FEIS, page 3-414). Breaks in corridors should be less than 65 feet wide to facilitate flying squirrel dispersal (Forest Plan Appendix N, page N-17). There are approximately 6,487 acres of high-volume strata in the project area.

Flying squirrel habitat would be expected to decline relative to the harvest of old-growth forest. Local populations may be displaced because stands of sufficient size to support a population are not maintained. The multi-scale Conservation Biology Strategy of the Forest Plan was designed to meet the habitat needs of old-growth associated species, including the flying squirrel. Components of the original forest canopy would be retained within harvest units and should mitigate potential adverse effects resulting from timber harvest (Forest Plan, page 4-119).

Cumulative Effects to Wildlife Habitats and Species

Some of the areas surrounding the project area have been intensively harvested. Extensive clearcut timber harvest has occurred on the non-federal lands of Polk Inlet, Sulzer Portage, the south shore of West Arm, Cholmondeley Sound, and the north shore of Skowl Arm. The Forest Service has harvested timber in Polk Inlet, Skowl Arm and McKenzie Inlet and the southeast portion of Cholmondeley Sound.

The Polk Inlet ID Team noted that the large unfragmented interior blocks of old-growth habitat in Sunny Cove, Cannery Creek, Big Creek and Sulzer Portage were the only interior valleys to contain high quality deer winter range and Management Indicator Species habitat. They also noted these areas were dominated by high-volume old growth at relatively low elevation and were critical links between the Old Tom Research Natural Area and the South POW ecological province. According to the Polk FEIS, "At the end of the first rotation (2054) most of the CFL will have been harvested with the exception of the 7,270 acres remaining, primarily due to inaccessibility and retention in scenic viewsheds. In addition 17,815 acres of unsuitable and unavailable old growth would remain assuming no additional harvest. The 7,270 acres of suitable old growth remaining would mostly occur as isolated patches in buffers along currently unmapped streams and in scenic viewsheds. Landscape level biodiversity would decline significantly within the Polk Inlet Project Area by 2054. At this time 25,000 acres remain within the Maybeso Experimental Forest, Old Toms Research Natural Area, stream, beach and estuary buffers and areas of very high MMI soils" (Polk Inlet FEIS p. 4-126-127). In the Wildlife section of the Polk FEIS it says "that road building in the Sunny Creek watershed would be discouraged (p.100). The area is excellent for black bear, and the habitats surrounding Sunny Cove support populations of Vancouver Canada geese, other waterfowl and sandhill cranes" (Polk Inlet FEIS p. 4-98). Since publishing the Polk Inlet FEIS, the areas of Sulzer Portage and Big Creek have been conveyed to a Native Corporation and the timber has been harvested. The Forest Service has planned timber harvest units in the Cannery Creek watershed (Chasina FEIS). This project plans to harvest Sunny Creek drainage.

Timber harvest in Sunny Cove has the potential to affect wildlife species such as deer, black bear, geese, cranes, and other waterfowl. The effects of harvest and road construction in areas adjacent to Sunny Creek may compound the effects to wildlife from harvesting timber in the Sunny Creek area. With the proposed harvest in Sunny Cove, this large, unfragmented old-growth block is reduced by about half, which diminishes its function as habitat and as a migration corridor. The Forest Plan old growth strategy of old growth reserves and unit tree harvest retention is intended to mitigate cumulative effects.

The land around Saltery Cove has recently been conveyed to Native corporations and the State of Alaska. If these areas are logged as other conveyed lands have been, a break in the beach fringe corridor would occur. During discussions with the Forest Service, the Native corporations and the State of Alaska have indicated that they do not plan to harvest timber in this area.

The Cholmondeley Project area is naturally highly fragmented, and only 35 percent qualifies as commercial forest land. Contiguous old growth is concentrated in the main watersheds and along the north shore of West Arm, Cholmondeley Sound. Harvest in any of these areas will result in increased forest fragmentation. Wildlife species in the project area that are dependent on these few old growth areas may be affected because other areas of the project area are not well suited to serve as refugia, especially during winters with heavy snowfall. Habitat is available in McKenzie Inlet to the west, but this habitat is not accessible for species from all areas of the Cholmondeley Project Area due to distance and lack of corridors. The project area is surrounded on the other three sides by saltwater.

With no future harvest planned, cumulative effects for the management indicator species would be limited to the immediate actions of the chosen alternative. The maximum harvest level from the alternatives would occur on 3 percent of the project area. Almost half of the land base of the project area will be in old-growth reserves.

With no foreseeable future harvest planned, cumulative effects for the management indicator species would be limited to the immediate actions of the chosen alternative. The maximum harvest level from the alternatives would occur on 3 percent of the project area, and harvest 9% of the POG. Alternatives 2, 3 and 5 all harvest 9% of the POG, while Alternative 6 harvests 8% and Alternatives 4 and 7 each harvest 5% and 3% of the POG respectively. Slightly more than half (55%, 29,244 acres) of the land base of the project area will be in old-growth reserves in Alternative 5, the preferred alternative. Alternative 7 only places 31% (16,189 acres) of the land into OGRs.

Threatened, Endangered, and Sensitive Species

This section evaluates the potential effects of harvesting timber and building roads and LTFs on wildlife and plant species within the project area listed as threatened and endangered under the Endangered Species Act, and Forest Service sensitive species. Threatened, endangered, and sensitive species are addressed in the Biological Evaluation (BE) and Biological Assessment (BA) for the Forest Plan and in the BA for this project. These documents are incorporated into this analysis by reference.

Threatened and Endangered Species

Threatened and endangered species are plant and animal species formally listed by the U.S. Fish and Wildlife Service (USFWS) or the National Marine Fisheries Service (NMFS), under the authority of the Endangered Species Act of 1973, as amended. The

State of Alaska has an Endangered Species law that authorizes the commissioner of the Alaska Department of Fish and Game (ADF&G) to list Alaska endangered species. The Regional Forester designates "Sensitive Species" occurring in National Forests.

One endangered fish, the Snake River sockeye salmon *(Oncorhychus nerka),* and two threatened fish species, the Snake River fall Chinook salmon *(Oncorhychus tshawytscha)* and the Snake River spring/summer Chinook salmon may be present in the saltwater around the project area. They may occupy this area during the marine rearing period of their life cycle but their presence has not been documented.

The endangered humpback whale (*Megaptera novaeangliae*) and the threatened Steller sea lion (*Eumetopas jubatus*) occur in the saltwater around the project area. The endangered American peregrine falcon (*Falco peregrinus anatum*) may occur in the project area (Appendix E). This species was delisted as of 8/25/99; however, at the time this document was initiated, the species was still on the endangered species list, and as such, is still covered in the Biological Evaluation portion of the EIS. Biological Assessments for the American peregrine falcon, and the humpback whale and Steller sea lion were submitted to the USFWS and NMFS, respectively. No other threatened, endangered birds or mammals are known to occur in the project area. None of the alternatives are anticipated to adversely affect the humpback whale, Steller sea lion, or American peregrine falcon. The planned activities do not occur in habitats used by these species or occur on a very limited scale, such as LTFs.

Sensitive Species

Animal species listed as sensitive that have the greatest potential to occur within the project area are Peale's peregrine falcon (*Falco peregrinus*), Queen Charlotte (northern) goshawk (*Accipiter gentilis*), and the trumpeter swan (*Cygnus buccinator*) (Appendix E). Trumpeter swans have been reported in the Saltery Cove area. Suitable nesting, brood rearing, and wintering habitat exists in the project area, especially in the Saltery Cove and Sunny Cove estuaries. Trumpeter swans are not known to nest as far south as the Craig Ranger District or the Cholmondeley Project Area. Nine sensitive plant species may occur in the project area (Table 3-36). The Queen Charlotte butterweed (*Senecio moresbiensis*) is the only species whose presence has been documented; however, the habitat for the other eight species is present (Appendix E). Project activities may adversely affect some individuals but are not likely to tend any species toward listing as threatened or endangered.

Table 3-36: Predicted Effects to Threatened, Endangered and Sensitive Species for the Cholmondeley Project

Species	Present in PA	Affect
Snake river Sockeye	May occur in saltwater	Not likely
Snake River Chinook (fall)	May occur in saltwater	Not likely
Snake River Chinook (spring/summer)	May occur in saltwater	Not likely
Humpback Whale	May occur in saltwater	Not likely
Steller Sea lion	May occur in saltwater	Not likely
American Peregrine	May occur	May affect
Peale's Peregrine	May occur	May affect
Goshawk	May occur	May affect
Trumpeter Swan	Yes	May affect
Goosegrass sedge	May occur	May affect
Edible thistle	May occur	May affect
Davy mannagrass	May occur	May affect
Wright filmy fern	May occur	May affect
Truncate quillwort	May occur	May affect
Calder lovage	May occur	May affect
Bog orchid	May occur	May affect
Loose-flowered bluegrass	May occur	May affect
Queen Charlotte butterweed	Yes	May affect

Pacific Yew (Taxus brevifolia)

The Pacific Yew tree is protected under the Pacific Yew Tree Act of 1992 (January 3, 1992, 16 U.S.C. 4804).

The Cholmondeley Project Area is at the very northern-most portion of Pacific yew's (*Taxus brevifolia nutt*) is at the very northern-most portion of its range. It Pacific yew is typically found within 500 feet of saltwater as it depends upon the warm maritime climate to exist at this latitude.

Ketchikan Area Ecologist, An inventory of Pacific yew was conducted on the area just south of the project area in 1992 by Tom DeMeo conducted an inventory of Pacific yew on the area just south of the project area in 1992. The study concluded that populations were very low, with an estimated six trees per mile of shoreline. Most sightings around Cholmondeley Sound have been on low quality sites or within 500 feet of the shoreline. In the project area, it appears as a small tree or shrub and is found scattered on the extreme southern and eastern end of the project area (around Monie Lake).

Silvicultural characteristics show it that Pacific yew is very tolerant to shade and requires it for establishment (Pacific Yew Act of 1992). However, studies have shown that Pacific yew can grow and can adapt to shaded conditions (Mitchell 1998, Crawford 1983) however, Difazio (1997) also suggests that tree vigor increases with

overstory openness. Stump sprouting is the major form of propagation for the yew. In dryer climates exposure to sun may dry out stumps and sprouts. However; however, in the wetter climate of southeast Alaska, this drying should not occur. Experiments in western Washington have shown that artificial shading also did not affect the survival of the sprouts (Minore 1996).

The Pacific Yew Act of 1992 calls for "sustainable harvest," "long-term conservation," "allowing for resprouting," and "minimizing adverse effects." In light of the diverse silvicultural properties listed above, it appears that several options exist for yew management in promoting the goals of the Act. In Cholmondeley Sound, the yew appears as an understory tree only. However, as mentioned above, it appears that it can tolerate the less than intense sunlight of southeast Alaska if grown it happens to occur in an a more open condition. It should also be able to adapt to a partial canopy removal such as an overstory removal, or it may be able to resprout in an open canopy like an even-aged clearcut, particularly one with reserves.

Effects anticipated from harvest include damage or harvest to individual trees during cable yarding operations. This would depend on yarding corridor placement. Individual trees normally would not be cut because of their non-commercial status, less than merchantable size, and understory location. Most of these scattered trees would occur in the 1,000-foot beach buffer and in low-quality stands. Helicopter yarding would tend to have less impact due to full suspension yarding and due to more understory trees left standing. Pacific yew would be expected to regenerate under various canopy densities (Mitchell, A.K., 1998).

Subsistence

Section 810 of ANILCA requires a federal agency having jurisdiction over public lands in Alaska to analyze the potential effects of proposed land use activities on subsistence uses and needs. An ANILCA 810 analysis must include several components. First, the proposed actions must be analyzed to determine if they significantly restrict subsistence uses. This analysis must be concluded with a draft determination either of "no significant effect" or a determination that describes possible effects. For any conclusion other than "no significant effect," formal ANILCA hearings must be conducted. Following these hearings, a final determination based on an analysis of the potential effects of the final proposed action must be published.

This analysis focuses on the potential effects, including cumulative effects, of timber harvest and road construction on the abundance and distribution of subsistence resources and opportunities to harvest them. This analysis tiers to the comprehensive analysis (TRUCS data) of the Forest Plan (Forest Plan FEIS, pages 3-210 to 3-229 and USDA, Deer Hunting Patterns, Resource Populations, and Management Issues on Prince of Wales Island).

Two small communities with full-time residents are included in the Cholmondeley Project Area: Saltery Cove and Sunny Cove. Effects of this project on subsistence activities associated with Sunny Cove are discussed above in Issue 3. Formal data on subsistence use within these communities is not available. However, the subsistence life-style of hunting, fishing, and gathering is practiced in these communities. Salmon, trout, deer, black bear, and marten are the principal resources used for subsistence.

Other resources include berries, clams, crabs, and other saltwater resources. Water as a drinking source and a power source has also been brought forward as an issue. Effects on drinking water are discussed under Issues 1-3 in this chapter. Power generation has not been discussed in any previous analyses under section 810 in ANILCA.

Kasaan is the subsistence community outside the project area that may be most affected by the proposed activities. Low-level subsistence use by members of this community has been documented in Wildlife analysis Area (WAA) 1213. No community claims more than 5 percent of their subsistence use from either WAA 1212 or 1213. WAA 1214 is only 1 percent of the project area and is not included in this analysis. Ketchikan is the only other non-rural community outside the project area that shows documented use of this area for hunting. Ketchikan is a non-rural community whose residents do not qualify as subsistence users. WAAs 1212 and 1213 do not account for significant subsistence use for any Southeast Alaska community (Forest Plan FEIS, Appendix H).

Saxman and Metlakatla, subsistence communities outside the project area, may also have minor subsistence use of the area.

No roads currently exist on the project area. Access to the area is by boat or float plane.

Access

Alternatives 1, 2, and 7 would not change access because no roads would be built. Alternatives 3, 4, 5, and 6 would change access in Sunny Cove and Alternatives 4 and 5 would change access in Saltery Cove and Clover Bay. All roads built in Alternatives 3, 4, 5 and 6 would be closed to all vehicles following timber harvest and silvicultural activities. A small increase in the amount of deer hunting by foot travel along these closed roads is anticipated from rural as well as non-rural (Ketchikan) hunters from outside the project area.

Abundance and Distribution

Deer

Timber harvest would reduce deer habitat capability (Table 3-34). For the vast majority of the project area, we estimate that deer population density would be between 17 deer/mi^2 (WAA 1212) and 20 deer/mi^2 (WAA 1213) in 2095. These numbers are at or above that which is recommended in the Forest Plan to sustain a huntable population. The deer population density in WAA 1214 is predicted to drop to 11 deer/mi^2 because of activities that have occurred outside the project area in this WAA. The resulting density in this WAA is below the number recommended by the Forest Plan to sustain a population of deer high enough to support both hunters and wolf predation. No harvest is planned in this WAA, however, and only 1 percent of it is in the project area.

Deer harvest information for calendar years 1987 through 1998 is provided in Table 3-37 for WAAs 1212, 1213 and 1214 as compiled by ADF&G hunter surveys. Generally, the data shows low harvest levels in WAAs 1212 and 1213. WAA 1212, which takes in the majority of the project area, shows an average of 25 deer taken per year in the project area. WAA 1213, which covers the southern end of the project area, averages 16 deer taken per year. WAA 1214, which covers only 1 percent of the

project area and mainly covers the roaded areas to the west, depicts the hunting pressure from Prince of Wales Island residents on the main road system. WAA 1214 shows an average of 94 deer taken per year.

Table 3-37: Deer Harvest Levels Per Wildlife Analysis Area (WAA)

WAA	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	12-Year Avg.
1212 Urban	23	20	46	7	32	8	29	9	14	56	0	19	**22**
1212 Rural	8	0	0	0	4	0	0	0	21	0	0	8	**3**
1213 Urban	0	0	10	31	0	8	64	0	0	11	6	23	**13**
1213 Rural	2	0	0	0	0	0	8	0	0	21	0	0	**3**
1214 Urban	47	46	51	74	40	103	9	57	85	47	47	14	**52**
1214 Rural	43	47	30	50	43	41	24	19	32	55	39	84	**42**

1987 – 1996 from: Deer Hunting Patterns, Resource Population, and Management Issues on Prince of Wales Island; USDA R10-MB-376, June 1, 1998
1997 – Deer Hunter Survey Statistics, 1 July 1997 – 30 June 1998
199 – Deer Hunter Survey Statistics, 1 July 1998 – 30 June, 1999; Tom Paul and Tom B. Straugh

Marten

Marten habitat would be reduced between 4 percent in Alternative 7 and 9 percent in Alternatives 2, 3, and 5. Marten population declines have been noted when road densities reach 0.2 mi/mi^2; when road densities reach 0.6 mi/mi^2, population declines of 90 percent have been noted (Suring et al. 1992). Population declines associated with road construction would not occur in WAA 1212 under Alternatives 1, 2, 3, and 7 because no roads will be built in this WAA under these alternatives. Populations could be expected to decline during road construction associated with timber harvest under Alternatives 4, 5, and 6. Population declines around Saltery Cove would be the same under all action alternatives since the amount of road construction is the same. Population declines in the area north of Clover Bay would be less in Alternative 4 than Alternative 5 because no roads are built north of Monie Lake in Alternative 4. In neither of these alternatives does the road density approach the 0.6 mi/mi^2 where a population decline of up to 90 percent could be expected (see Marten and Road Density subsections, above). When roads are closed to motorized use following timber harvest, marten populations would recover, though perhaps not to their original levels. The roadbeds would continue to provide easier access for marten trapping, even though the road has been closed.

The road system in WAA 1213 would not cause significant marten population declines either during or following timber harvest because road density does not exceed 0.1 mi/mi^2 in any alternative. In WAA 1214, open road density of 1.3 mi/mi^2 is currently above the road density threshold of 0.6 mi/mi^2; however, the additional 0.9 mile of road constructed in Alternatives 4 and 5 does not increase the open road density or connect with the road system in WAA 1214. Thus this road segment would not add incrementally to the effects on marten populations in this WAA.

Marine Resources

Fish, marine life, and beach plant resource populations should only be temporarily impacted on a limited basis by barges and other equipment passing through the area. Impacts due to increased populations of loggers in the area should be temporary and limited. Resource populations will be protected through habitat protection measures such as one-thousand foot beach buffers, estuary buffers, old-growth reserves, and other stream buffers. Yarding methods such as split-lining, tree suspension, and reserve tree retention will also protect habitat for fish and other terrestrial populations. We expect no significant effects on these marine related populations. (See the wildlife, fisheries sections in chapter 3 as well as Issues 1-3 for more discussion on effects).

Wolf

Effects on wolves mirror effects on the deer populations. Deer populations are not expected to drop below threshold levels (17 deer/mi.^{2}) and open road densities will be below threshold limits (0.7 to 1.0 mi./mi.^{2}).

Competition

Significant increased competition between subsistence hunters and between subsistence hunters and sport hunters is not expected. Available data suggests this area is not heavily used by subsistence or sport hunters (Forest Plan FEIS, pages 3-588 to 3-591). Conversations at public meetings indicated some existing use by local residents. Constructing road systems will increase access to the project area and thereby increase

hunter use. Approximately one-half of rural Southeast Alaska households reported the presence of clearcuts of various ages in currently reliable deer harvest areas (44 percent) and in the most-often-used deer harvest areas (48 percent) (Kruse and Muth 1990). The roads in the project area are isolated from the main Prince of Wales road system and from each other. In addition, these three separate road systems would be closed to all motorized vehicles. Therefore, we do not anticipate significant increases in use of the project area.

Final EIS Finding

Following an analysis of the individual effects of the ANILCA categories, there is little likelihood that subsistence use in the Cholmondeley Project Area would be substantially affected by any of the action alternatives. However, the cumulative effects of past and future timber harvests (and associated activities), along with those of the proposed project, from implementing the Forest Plan through the end of the rotation, may represent a significant possibility of a significant restriction of subsistence use of deer on Game Management Unit 2 (Prince of Wales Island) as a whole.

This finding is based on the evaluations presented above on access, abundance and distribution, and competition for harvested resources in the study area. In WAA 1214, the abundance and distribution of marten, deer, and wolf are currently below recommended levels and deer will be below recommended levels in 2095; however, only one 1 percent of this WAA is within the project area. Abundance and distribution of both marten and deer will remain within or above recommended levels in WAAs 1212 and 1213 through the rotation.

With regard to other subsistence resources, the potential foreseeable effects from the action alternatives in the Cholmondeley Project Area do not indicate a significant possibility of a significant restriction of subsistence uses for black bear, furbearers, marine mammals, waterfowl, salmon, other finfish, shellfish, timber resources, water yield, and other foods such as berries and roots. There should be no significant effect on the quantity of water flowing through the watershed in any of the alternatives.

Watersheds

Watersheds are areas that collect and discharge runoff through a given point on a stream. The project area contains 53 delineated watersheds. Within the Cholmondeley Project Area, timber harvest is proposed in 24 watersheds and road building is proposed in 20 of the watersheds.

Affected Environment

The high concern watersheds identified in the Watershed Analysis (Watershed Analysis Report and Floodplains, Soils and Wetlands Resources Report, project file) are Sunny Creek (F27A), Monie Creek (F33A), Saltery Creek (F37A), and Drinking Water Creek (F28A). These watersheds are more sensitive to management activities because the commercial forest land is on steep slopes bisected by streams with high value fish habitat in the lower reaches of the watershed. The recommendations made in the Watershed Analysis Report and Floodplains, Soils and Wetlands Resources Report (project file) were incorporated into the Cholmondeley alternatives. In some cases, the recommendations from the Watershed Analysis expanded the minimum

buffers, required by the Forest Plan, to conserve stream channel stability, floodplain integrity, and high quality fish habitat.

Direct and Indirect Effects

Proposed harvest in the high concern watersheds is displayed in Table 3-38. Proposed units in these high concern areas are 614-034 and 614-005 in the Saltery Creek watershed, 616-021 and 616-275 in the Monie Creek watershed, and 675-033 and 675-037 in the Sunny Creek watershed. Harvest of other watersheds in the project area is described in the Fisheries, Watershed, and Riparian Report (project file).

Table 3-38: Percent of High Concern Watershed and Commercial Forest Land Proposed for Harvest in the Cholmondeley Project Area

Watershed Name and Number	Area (Acres)	CFL (Acres)	Area Harvested (%)	CFL Harvested (%)
Saltery Creek (F37A)	4,236	970	4	16
Drinking Water (F28A)	657	86	8	58
Monie Creek (F33A)	2,079	719	18	53
Sunny Creek (F27A)	4,831	832	5	27

We expect no direct or indirect effects on watershed resources because of the design criteria incorporated into the alternatives and the small percentage of each watershed harvested for all alternatives.

Soil Productivity and Stability

Soil productivity on the project area is primarily a function of geology, soil drainage, and soil depth. The Forest Plan identified soil productivity issues; three are pertinent to the soils on the Cholmondeley Project Area:

1. Soil productivity loss due to construction of roads and development of rock pits.
2. Soil productivity loss due to soil displacement.
3. Soil productivity loss due to slight changes in soil drainage as a result of harvesting timber from relatively low-volume stands growing on poorly drained organic soils.

Soil productivity on poorly drained organic soils is discussed in the Wetlands subsection. There are no existing roads or rock pits on the project area.

The intent of the Regional Soil Quality Standards is to maintain soil productivity within acceptable limits. The standards allow up to 15 percent of an activity area to be in a detrimental soil condition. The activity area used in this analysis is the harvest unit. Soil disturbance within harvest units can reduce soil productivity, especially areas of well-drained, shallow organic soils underlain by bedrock (McGilvery soils). Soil disturbances are created when felling trees or yarding logs displaces the surface organic mat. Soil disturbances larger than 100 square feet are considered detrimental and are referred to as soil displacements (FSM 2554 #2500-92-1).

Log suspension during yarding minimizes soil disturbance and maintains the root mat. Two-aged cuts are prescribed on some units in all the action alternatives, which further

maintains the root mat. Partial harvest prescriptions are planned for 182 acres in Alternatives 2 and 5, and 448 and 124 acres in Alternatives 3 and 4, respectively, while Alternatives 6 and 7 display 427 and 51 acres of partial harvest respectively.

Landwehr (1999 unpublished) found that approximately 3.0 percent of the soil surface was displaced in harvest units yarded with partial suspension cable logging systems on slopes over 75 percent. Soil was displaced on 1.8 percent of the harvest unit when logs were yarded with full suspension systems. Based on this information, the soil scientist assumed 5 percent displacement (3 percent plus one confidence interval) for areas of partial suspension yarding and 2 percent displacement for areas with full suspension yarding.

Post-sale monitoring indicates the least amount of soil displacement would be in partial-cut units yarded by helicopters, due to full log suspension and the amount of root mat left intact. Based on post-sale monitoring, detrimental impacts to the soil resource would remain within Regional Soil Quality Standards (Table 3-39). The estimates displayed in Table 3-39 are based on timber harvested from very steep slopes. Soil displacement on gentler slopes would be less.

Roads

Most of the potentially adverse impacts to soil productivity would be from road construction. Road construction and rock pit development cover areas of soil with rock and overburden, reducing site productivity.

There are no existing roads on the Cholmondeley Project Area. Alternatives 1, 2, and 7 do not propose any new roads. Alternatives 3, 4, 5, and 6 propose construction of 5, 18, 26, and 18, miles of road, respectively. The analysis assumes a 40-foot wide disturbed soil area, or 4.8 acres of disturbance per mile of road (Table 3-39). The analysis also assumes a two-acre rock pit for every 2 miles of proposed road.

Alternative 5 creates the highest potential for impacts to soil productivity. Under Alternative 5, roads would affect approximately 150 acres or 0.4 percent of the project area. The most significantly affected watershed would be on the Monie Creek Watershed under Alternative 5. Almost 3 percent of the Monie Creek Watershed could be impacted, which is well within the Regional Soil Quality Standards.

Table 3-39: Estimated Acres of Roads and Soil Displacements by Alternative and Major Watershed

Alternative and Disturbance Type	Monie Cr. Watershed	Saltery Cr. Watershed	Sunny Cr. Watershed	Other Watersheds	Total Acres
Alternative 2					
Total Acres Harvested	389	154	222	746	1,511
Soil Displacement (ac)	8	3	4	15	30
Roads & Rock Pits (ac)	0	0	0	0	0
Detrimental Soil Cond. (ac)	8	3	4	15	30
Percent of Watershed	0.30	0.07	0.08	0.04	0.06
Alternative 3					
Total Acres Harvested	389	154	222	724	1,489
Soil Displacement (ac)	8	3	7	16	34
Roads & Rock Pits (ac)	0	0	9	20	29
Detrimental Soil Cond. (ac)	8	3	16	36	63
Percent of Watershed	0.30	0.07	0.33	0.09	0.12
Alternative 4					
Total Acres Harvested	262	154	222	303	941
Soil Displacement (ac)	11	7	7	15	40
Roads & Rock Pits (ac)	41	15	9	38	103
Detrimental Soil Cond. (ac)	52	22	16	53	143
Percent of Watershed	2.05	0.52	0.33	0.13	0.27
Alternative 5					
Total Acres Harvested	389	154	222	746	1,511
Soil Displacement (ac)	19	7	7	27	60
Roads & Rock Pits (ac)	55	15	9	71	150
Detrimental Soil Cond. (ac)	74	22	16	98	210
Percent of Watershed	2.91	0.52	0.33	0.24	0.40
Alternative 6					
Total Acres Harvested	379	21	221	865	1,486
Soil Displacement (ac)	16	3	8	19	46
Roads & Rock Pits (ac)	45	0	14	59	118
Detrimental Soil Cond. (ac)	61	3	22	78	164
Percent of Watershed	2.93	0.07	0.46	0.12	3.58
Alternative 7					
Total Acres Harvested	0	0	0	0	0
Soil Displacement (ac)	0	0	0	0	0
Roads & Rock Pits (ac)	0	0	0	0	0
Detrimental Soil Cond. (ac)	0	0	0	0	0
Percent of Watershed	0	0	0	0	0

Landslides

Mass wasting (landslide) is the dominant erosion process in steep forested terrain with high soil water levels (Swanston 1969). Topographic, geologic and soil conditions usually determine where a landslide occurs but rainfall is probably the principle triggering force determining when landslides occur (Patric and Swanston 1969). Landslide inventories in Southeast Alaska have found that landslides in harvested areas are generally smaller though more frequent than in unharvested areas (Swanston and Marion 1991, Landwehr 1998 unpublished, Bishop and Stevens 1964).

Naturally unstable areas on the Cholmondeley Project Area include:

- most of the upper slopes in the Saltery Creek basin upstream of Swan Lake,
- the north facing slopes draining into Trollers Cove,
- the steep slopes in the Monie Creek basin upstream of the lake,
- the upper slopes in the Sunny Creek basin, and
- most of the steeper slopes in the Clover Creek basin.

The Forest Service uses a mass movement index (MMI) for preliminary identification of potentially unstable sites in a project area. The mass movement index summarizes the physical properties of a soil and rates the relative stability of the soil. The Cholmondeley Project Area has 5,740 acres of mapped MMI 4 soils. MMI 4 soils were not included in the timber base used to develop the Cholmondeley unit pool. Harvest units with indicators of instability were field reviewed by a soil scientist. Seven units were not considered for harvest and 11 units were modified following field reconnaissance (Floodplains, Soils and Wetlands Resources Report, project file). In a few cases, the ID team soil scientist identified slopes greater than 72 percent that are suitable for timber harvest due to lower than MMI 4 landslide potential.

Rationale for Timber Harvest on Some Slopes Over 72 Percent

Units 616-014, 616-015, 616-020, 675-026, 675-027, 675-038, and 675-039 were deleted from the unit pool following reconnaissance due to various reasons of instability. Units 614-034b, 616-010, 616-021, 616-022, 616-123, 616-275, 675-032, 675-033, 675-037, and 676-462 were modified following soil scientist reconnaissance due to concerns about slope stability and harvest on shallow soils on steep slopes. In a few cases, the IDT Soil Scientist identified slopes greater than 72 percent for timber harvest due to lower than MMI 4 landslide potential or inclusions of an acre or less. Table 3-40 lists proposed harvest units and the approximate acreage of slopes over 72 percent gradient by harvest unit.

Alternatives 2, 3, and 5, propose 55 acres with slopes exceeding 72 percent. Alternative 4 proposes 43 acres of timber harvest on slopes over 72 percent, while Alternative 6 proposes 28, and Alternative 7 proposes 13 acres of harvest on slopes exceeding 72 percent. In most cases, the slopes over 72 percent are short pitches adjacent to cliffs and rock outcrops. A soil scientist has visited all. Over half of the steep-slope harvest is located in four harvest units: 614-001a, 616-275, 675-033, and 675-037.

Forest Plan Implementation Policy Clarification (USDA 1998) requires on-site analysis on areas with slopes over 72 percent that are proposed for harvest. This analysis on slopes over 72 percent has been completed on over 48 acres. The difference between 55 acres proposed for harvest and 48 acres visited are small inclusions and rock outcrops to be visited during presale layout. This analysis is included in Appendix A of the Floodplains, Soils, and Wetlands Resource Report for this project. The remaining unvisited 28 acres of lands over 72 percent slopes within units, (Table 3-40), are deemed unsuitable timber and will not be harvested. Additional isolated timber anticipated because of the steep slope deletions is also

listed. Any additional small steep slope inclusions found during unit layout will be analyzed in the presale change analysis.

Table 3-40: Unvisited Slopes Over 72 Percent Dropped From the Suitable Timber Base

Unit Number	Total Acres	Acres of Slopes Over 72 Percent	Isolated Acres Behind 72 Percent Slopes
615-025	39	2	0
616-007	33	2	0
616-011	78	3	0 if landing relocation
616-013	69	2	0 if landing relocation
616-016	36	3	5
616-023	23	2	5
616-024	55	3	0 if landing relocation
674-549	28	2	0
674-550	31	4	0
674-551	34	3	0
676-489	17	2	0
Totals:	**443**	**28**	**10**

Source: Ketchikan Area Geographic Information System, IDT Soil Scientist's notes, and field forester's estimates. Unites were office-reviewed by a presale forester.

Direct and Indirect Effects:

Landslide Probability

Factors affecting the landslide rate in harvest units include the amount of timber harvest on steep slopes and the amount of soil disturbance in harvest units. In the next 20 years, we expect one 0.6-acre landslide for each 622 acres of timber harvest and one 3.1-acre landslide for each 6,239 acres of old growth (Landwehr 1998, unpublished). Landwehr's 1998 landslide inventory included the northern half of Prince of Wales Island. The estimated area of landslides of each alternative (Table 3-41) is based on this expectation.

Table 3-41: Estimated Acres of Landslides by Alternative per 20-year Time Period

	Acres of Landslides			
Alternative	Old growth	Second growth	Road-related	Total
1	9.0	0.1	0.0	9.1
2	8.2	1.6	0.0	9.8
3	8.2	1.6	0.1	9.9
4	8.5	1.0	0.5	10.0
5	8.2	1.5	0.7	10.4
6	8.5	1.4	0.5	10.4
7	8.6	0.3	0.0	8.9

Landslides in old-growth forest would still occur and affect an estimated 9.1 acres under the no-action alternative (Alternative 1). Similar acres of landslides would result from implementing most of the action alternatives. This is due to the large scale of the landslide frequency compared to the relatively small scale of timber harvest proposed in the Cholmondeley Project. Intense local storm events often cause more landslides in one area than in adjacent areas. During these events, more landslides would occur in second growth; however, due to their smaller average size and the limited amount of second-growth created by implementing the action alternatives, the difference in total acres of landslides between alternatives is slight.

All units would be yarded with full suspension under Alternative 2. This alternative would have the best post-harvest slope stability of the action alternatives. Alternative 3 uses helicopter yarding in most units, while Alternative 7 consists of a very limited timber removal (585 acres), of which 41 percent is proposed to be harvested using helicopter timber removal processes. It is expected that both alternatives 3 and 7 will result in less soil disturbance and better slope stability than Alternatives 4, 5, and 6. Alternative 4 builds more road than Alternative 3 but harvests less timber, resulting in post-harvest slope stability similar to Alternative 3. Alternative 7 is expected to have less net negative effects than Alternative 2 due to the smaller number of total harvest acres.

Region 10 Soil Quality Standards consider landslides to be a detrimental soil condition. Based on monitoring information (Landwehr 1998, unpublished), landslides and other detrimental soil conditions are expected to be within Region 10 Soil Quality Standards. Sunny Creek has the highest potential for management-induced landslides and impacts to water quality due to the slightly deeper soils, amount of steep slope harvest, and proximity of slopes to streams. In the Clover Bay and Saltery Cove areas, less harvest is proposed on steep slopes, the slopes are shorter, and soils tend to be shallower. Chances of management-induced landslides are therefore less, as are the chances that a landslide would reach a stream.

Streams

Affected Environment

The project area contains 306 miles of mapped streams. Of these, 39 miles are Class I, 75 miles are Class II, 180 miles are Class III, and the remaining 12 miles are Class IV streams. More Class IV streams exist in the project area than are mapped. Only those Class IV streams adjacent to proposed roads or units and identified during reconnaissance were mapped.

Class I refers to streams with anadromous or adfluvial fish or fish habitat, or, high quality resident fish waters, or habitat above fish migration barriers know to provide reasonable enhancement opportunities for anadromous fish. Class II refers to streams with resident fish or fish habitat and generally steep (6 to 25 percent or higher) gradients where no anadromous fish occur, and otherwise not meeting Class I criteria. Class III refers to perennial streams and intermittent streams that have no fish populations or fish habitat, but have sufficient flow or sediment and debris transport to directly influence downstream water quality or fish habitat capability. Class IV refers to other intermittent, ephemeral, and small perennial channels with insufficient flow or sediment transport capabilities to directly influence downstream water quality or fish

habitat capability. Class IV streams do not have the characteristics of Class I, II, or III streams, and have a bank full width of at least 0.3 meters (1 foot). (Forest Service Handbook 2090.21 – Aquatic Habitat Management Handbook, Chapter 10, pages 7-8).

Direct and Indirect Effects

A sediment risk assessment model (Geier 1997) was used to compare the risk of sediment entering a stream within the watershed. This model compares watersheds within a given harvest scenario to identify the high-risk watersheds. It cannot be used to compare risk between alternatives. The criteria determining risk are: stream density, area of harvest, road density, channel types, and area of high hazard soils. The model classifies risk on a scale of 1 to 100. A higher value indicates higher potential of sediment to enter streams. The streams in Sportsman's Cove, South Monie, Sunny Creek, Drinking Water, and Monie watersheds have the highest risk of sedimentation (Watershed Analysis for the Cholmondeley Project Area, project file). The streams in these watersheds would be closely monitored during project implementation to ensure appropriate BMPs are used. Refer to Chapter 2, pages 32-35, for specific monitoring schedules and guidelines.

Road construction in Alternatives 3, 4, 5, and 6 requires crossing streams to access timber harvest units (Table 3-42). Effects of roads on fish habitat usually manifest at stream crossings. Roads affect fish habitat by blocking fish migrations, introducing fine sediments to streams, and increasing drainage efficiency of the land. Road condition surveys relative to fish passage and water quality were conducted on most system roads on the Tongass National Forest between 1998 and 2000. The surveys revealed that 53 percent of Class I and 83 percent of Class II culverts on the Forest do not meet the standards for fish passage. Passage standards on Class I streams are that juvenile coho must be able to navigate upstream through a road crossing structure at any flow below that which occurs for a two-day duration during a two-year return interval flood. Of 4,096 culverts surveyed on the Craig Ranger District in 1998, fish passage was completely blocked on 15 percent of Class I stream crossings and 11 percent of Class II stream crossings (Road Condition Survey Data, project file). To prevent road damage and maintain water quality, 21 percent of the Class III stream crossings, 16 percent of Class IV crossings and 51 percent of cross-drains had a serious need for maintenance. To improve on past practices, the 1997 Forest Plan includes Standards and Guidelines for culvert design and installation that meet standards for fish passage and water quality. All crossings on domestic water supply streams will be accomplished using log stringer bridges rather than culverts.

Table 3-42: Number of Stream Crossings by Alternative and Stream Class

Alternative	Class I	Class II	Class III	Class IV	Total
1	0	0	0	0	0
2	0	0	0	0	0
3	0	2	6	9	17
4	0	5	20	11	36
5	5	5	27	25	62
6	0	1	3	0	4
7	0	0	0	0	0

Alternative 5 has five crossings on Class I streams, all in the Monie Creek watershed. Alternative 5 requires 26 miles of new road construction while Alternative 4 would require building 19 miles and Alternative 3 requires 5 miles of road building. No roads would be built under Alternatives 2 and 7, which are yarded exclusively with helicopters.

Roads built before 1997 were not built under the same environmental standards we use today. The Forest Service has recently increased emphasis on road construction and maintenance quality under the Forest Plan Standards and Guidelines and the Soil and Water Conservation Practices (FSH 2509.22). All fish stream crossings now undergo thorough review by Forest Service biologists, hydrologists, engineers and Alaska Department of Fish and Game biologists to ensure fish passage standards are met. All roads will be put in storage approximately three years after the sales are complete. Stream crossing structures would be removed at that time, returning fish passage to near natural conditions. Monitoring our performance under these standards will improve our effectiveness and decrease negative environmental effects.

Timber harvest would remove trees up to the streambank and disturb riparian vegetation along Class IV streams within harvest units. While these streams do not have an immediate influence on downstream water quality and fish habitat, they inevitably introduce sediment to the larger streams. Class IV streams can be important sources of spawning gravels and woody debris in fish streams. BMPs require protections such as full or partial suspension when yarding over the stream, directional felling, or split yarding. The specific BMP applied to the stream is based on the physical characteristics of the stream and the need to protect streambank integrity (Appendix D).

Alternatives 2 and 5 each have 7.3 miles of unbuffered Class IV streams within harvest units. Alternative 3 and 4 have 5.1 and 4.0 miles of unbuffered streams, respectively. Alternative 1 does not harvest timber so no streams would be affected. Since all of the units in Alternatives 2 and 7 and most of the units in Alternative 3 are yarded with helicopters and have full suspension, we expect minimal disturbance to these stream reaches. Units in Alternatives 4, 5, and 6 are yarded with a variety of systems with varying suspensions requirements, resulting in a higher potential for disturbance on these stream reaches.

Riparian Areas

Riparian areas encompass the zone of interaction between the aquatic and terrestrial ecosystems, and include streams, lakes, and floodplains with distinctive resource values and characteristics. Riparian Management Areas (RMAs) are land areas of special concern for fish, other aquatic resources, and wildlife. The components of RMAs are specified in the Forest Plan (page 4-53), which also provides direction for the management of riparian resources. Buffer widths are specified for particular channel types (Forest Plan, pages 4-58 to 4-73). Where high value wetlands or unstable soils are adjacent to these buffers, they are included in the RMA. Areas managed to provide a reasonable assurance of windfirmness to the buffer are not considered part of the RMA.

Affected Environment

The project area contains 8,337 acres of RMAs. The riparian area of Sunny Creek is the most productive in terms of timber and fisheries resources. Productive fens that support anadromous fish populations are at the south end of Swan Lake and west of Monie Lake. All riparian areas are in a relatively pristine state because there has been little harvest in the project area.

Direct and Indirect Effects

Timber harvest and road construction activities adversely affect riparian areas by removing vegetation, disturbing soils, and eliminating a source of large woody debris. These activities result in erosion, high levels of stream sediment, destabilized streambanks, and reduced channel integrity. Timber harvest adjacent to riparian areas also accelerates windthrow. Proposed harvest activities are adjacent to the riparian areas of 4 Class I streams, 4 Class II streams, and 16 Class III streams (Appendix B). Sunny Creek, Monie Creek, Saltery Creek, and Wimpy Fish Creek are the Class I streams affected. Monie Creek, two small watersheds south of Monie Creek and Drinking Water Creek are the Class II streams affected.

The potential for windthrow of trees left within harvest units and riparian areas is addressed in the silvicultural prescriptions on unit cards. Stream buffers would be widened along many riparian zones through extended no-cut areas or partial cuts. These widened buffers are designed to add windfirmness to the main buffers. The width of the zone for windfirmness is generally between 25 feet (about one line of trees above the slope break) and 50 feet, with some zones for windfirmness extending out the total site-specific tree height (85 to 140 feet).

The windfirm zone design was based on field conditions observed during reconnaissance, including evidence of existing windthrow, prevailing wind direction, and stand characteristics. The zones would be further refined during project layout. Despite efforts to establish windfirm buffers, we expect that some trees in the buffers would blow down. The number of windthrown trees would be incidental to the whole buffer and not create adverse impacts to the stream channel or water quality. BMPs that reduce potential adverse impacts on soil and water resources are described in the site-specific prescriptions (Appendix B).

Floodplains

Affected Environment

Several floodplains are located within the Cholmondeley Project Area. The principal floodplains are located along Clover Creek, Monie Creek, Saltery Creek, and Sunny Creek. These floodplains range from 1 to 2 miles long, and up to 500 feet wide. They contain well-defined main channels, a number of overflow and side channels, and areas of beaver influenced ponds. Smaller areas of floodplains are located along many of the other streams in the project area. There are 335 acres of floodplains mapped within the Cholmondeley Project Area.

Executive Order 11988 directs Federal agencies to avoid to the extent practicable impacts to floodplains. Floodplains are one component of the Riparian Management Area delineated for the Cholmondeley Project. Timber harvest is prohibited on floodplains (Forest Plan, page 4-56).

Direct and Indirect Effects

Road construction may create both direct and indirect effects on floodplains. Alternatives 4, 5, and 6 include building new roads on a floodplain just upstream from Monie Lake. None of the other alternatives build roads in this area. The road length is minimized on floodplains under these alternatives. BMPs (FSH 2509.22) would be applied to maintain flow patterns and side channel habitat on the floodplain (Appendix C, Roads 2180000-2 and 2180400). Alternatives 3, 4, 5, and 6, propose building a road in the Sunny Creek Watershed, but the road does not cross any floodplains.

Wetlands

Wetlands are defined as "those areas that are inundated or saturated by surface water or groundwater with a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions." (40 CFR 230.41 (a) (1).

Affected Environment

Approximately 73 percent (38,625 acres) of the Cholmondeley Project Area classifies as wetland. The wetlands can be grouped into seven categories, shown in Table 3-43 and described below. Most of the wetlands are forested. While estuaries are not shown in the table – the project area shoreline excluded the estuaries from the land base – the potential effects on estuaries are discussed.

Alpine Shrubland/Short Sedge Complex

The alpine plant communities occur mostly on poorly drained organic soils, although a portion of the scrub-shrub type occurs on shallow, well-drained mineral soils. This wetland is a combination of palustrine emergent wetland (Cholmondeley EIS Wetland Habitat Type Descriptions Report, project record) and a scrub-shrub wetland. These wetlands function mainly as snow storage and melt water discharge and summer habitat for terrestrial wildlife species. These wetlands are common throughout the project area above 2,500 feet in elevation.

Forested Wetland/Short Sedge Complex

The forested wetland portion of this complex typically consists of a cedar-hemlock plant community on poorly drained soils. Deer cabbage and skunk cabbage are dominant components in the understory. The forested wetland is equivalent to the palustrine forested wetland in the USFWS classification system. The short sedge portion of this complex includes poor fens and rich bogs on moderately deep and deep, very poorly drained organic soils. The short sedge wetland is equivalent to the palustrine emergent sedge wetland in the USFWS classification system. These wetlands lie on lower footslopes or on broad ridgetops. These wetlands donate water to downslope resources and in some cases transfer water from upslope to downslope.

Forested Wetland/Forested Upland Complex

The forested wetland portion of this complex typically consists of a cedar-hemlock-blueberry-skunk cabbage plant community on poorly drained mineral soils. The forested upland portion typically consists of hemlock and blueberry dominated plant communities on steeper slopes or ridges where the forested wetlands occur in hollows on gentler slopes. These wetland habitat types typically were included in uplands on USFWS wetland maps. These wetlands lie at the very head of the transition from

upland to wetland and serve to transfer hillslope groundwater to downslope stream resources.

Forested Wetlands

The forested wetlands habitat type is mapped where large contiguous areas of forested wetlands exist. Typically these wetlands are on poorly drained organic soils of varying depths. The plant community is typically cedar-hemlock-blueberry and skunk cabbage; however, some shore pine dominated plant communities may be included. The USFWS equivalent is a palustrine forested wetland. These wetlands occur on hillslopes and footslopes, and serve to transfer water to downslope resources.

Scrub-Shrub/Short Sedge Complex

This wetland habitat type consists of nonmerchantable stands of yellow cedar and mountain hemlock, sometimes with shore pine in complex with short sedge communities as described above. Almost without exception this habitat type was mapped on deep, poorly-drained organic soils. The USFWS equivalent wetlands are the scrub/shrub palustrine and palustrine emergent sedge wetland. These wetlands lie on broad plains and ridgetops and serve to store water for slow release to downslope resources. When saturated, water runs off these wetlands quickly. These wetlands lie on broad foot slope plains and may or may not be hydrologically connected to upslope resources.

Tall Sedge Fens

These wetlands include fen plant communities dominated by tall sedges, typically Sitka sedge. The soils are deep, poorly drained peats or fine alluvial sediments. This wetland is included in the palustrine emergent wetland of the USFWS classification system. Tall sedge fens often form in dewatered beaver ponds, but can occur on deep organic soils on footslopes that process a lot of hillslope water. The tall sedge fen wetlands are limited to about 61 acres on the Cholmondeley Project Area and are considered high value wetlands. These wetlands provide good wildlife forage for terrestrial animals and Vancouver Canada geese.

Lakes and Ponds

Lakes and ponds include all open freshwater systems. They function as important habitat for most aquatic species, waterfowl, and furbearers. Lakes and ponds also provide a flood control and sediment deposition function.

Estuaries

This wetland habitat type supports mainly sedge and beach ryegrass plant communities. The soils are poorly drained silts, sands and gravels. This wetland is included in the estuarine-intertidal wetlands of the USFWS classification system. Estuaries serve as tidal/freshwater mixing zones and areas of sediment and nutrient deposition and storage. Estuaries are used by many saltwater aquatic species and terrestrial species. There are about 57 acres of estuaries on the Cholmondeley Project area. Estuaries are considered high value wetlands due to the numerous functions they serve.

Table 3-43: Acres of Major Wetland Habitat Types on the Cholmondeley Project Area

Wetland Habitat	Acres	Percent of Project Area
Alpine Shrubland/Short Sedge Complex	6,418	12.1%
Forested Wetland/Short Sedge Complex	9,080	17.2%
Forested Wetland/Forested Upland Complex*	10,339	19.6%
Forested Wetlands	7,058	13.3%
Scrub-shrub/Short Sedge Complex	3,117	5.9%
Tall Sedge Fens	61	0.1%
Lakes and Ponds**	2,552	4.8%
Total Wetlands	**38,625**	**73%**
Uplands	14,147	27%
Project Area Total	**52,772**	**100%**

* Half of the Forested Wetlands/Forested Uplands Complex is wetland.
** Lakes and Ponds are considered deep-water habitats, but are shown here for display purposes.

The Forest Plan ROD identified timber harvest on poorly drained organic soils as a concern. The ROD directed that timber harvest be avoided on the Kaikli, Karheen, Kitkun, and Maybeso soil series because scientific information was incomplete about the potential to produce 20 cubic feet of wood per acre per year on these soils. Timber harvest has been deferred where large areas of these soil series have been identified. A draft report, Tree Growth on Forested Wetlands Following Clearcutting on the Tongass National Forest (Julin et al. unpublished), has been completed. The Tongass Leadership Team decided it is no longer necessary to defer harvest on these soils based on the information in this report (File Code 1920, April 28, 2000). Small areas of these soils are included in the Cholmondeley unit pool. However, the ID team did not re-evaluate timber harvest on these previously deferred soils.

The natural and beneficial values of each wetland type differ in terms of their benefit to wildlife and fish habitat, hydrologic properties (flood flow moderation, groundwater recharge and discharge), site productivity, and water quality. Some of the most important wetland values in Southeast Alaska include wildlife harvest, fish production, habitat for sensitive or endangered plant and animal species, timber harvest, berry and other edible plant harvest, water quality maintenance, flood control, and recreation.

The biological significance of a wetland is related to the value of its functions and, at least in part, to the relative scarcity of the wetland type in the landscape. This is especially true in terms of biological diversity on the landscape scale. The relatively scarce tall sedge fens and estuarine salt marshes on the Cholmondeley Project Area have greater biological significance than the more common forested wetlands and short sedge fens, which are widespread throughout the landscape.

Wetland value is largely dependent on the human use or perceived benefit to be derived from the wetland. Because human perceptions change over time, the values we place on wetland or upland ecosystems also changes over time. Estuarine salt marshes and tall sedge fens are two wetlands on the Cholmondeley Project Area that are regionally recognized for the ecological functions they provide and, in part, due to

their scarcity. There are approximately 57 acres of estuaries on the project area. The largest estuary is at the mouth of Sunny Creek. Smaller estuaries are located at the mouths of Clover Creek, and Saltery Creek. There are about 61 acres of tall sedge fens mapped on the project area. In most cases these fens are dewatered beaver ponds that support Sitka sedge. The tall sedge fens are located at the head of Monie Lake, Swan Lake, and along the upper reaches of an unnamed creek south of Clover Creek (Barely Clover in the Watershed Analysis).

Other wetland types include the alpine shrubland/short sedge fen, forested wetlands, and scrub-shrub/short sedge complex. These wetlands cover extensive areas of the project area (Floodplains, Soils and Wetlands Resources Report, project file).

Direct and Indirect Effects

Executive Order 11990 and 33 CFR 323.3(b) require federal agencies to avoid and minimize impacts on wetlands. It is not possible to avoid all wetlands under the harvest alternatives because of their high density on the project area. High value wetlands were completely avoided during unit design and road location.

Harvesting timber from forested wetlands temporarily changes the hydrology of the site. Patric (1966) suggests an increase in water yield as a result of timber harvest. A temporary increase in soil moisture is expected until transpiration and interception surfaces are equal to pre-harvest conditions. The partial harvest areas would keep about 50 percent of the evapotranspiration surfaces intact. Tree growth on forested wetland sites is expected to be slower than on adjacent upland sites. Tables 3-44 and 3-45 display the proposed acres of timber harvest and proposed miles of road on wetlands in the three major watersheds for each alternative.

Roads through wetlands can affect the flow and reach of water in the wetland. The degree of impact to the wetland depends largely on the wetland type, and the road construction materials and methods used. Alternative 5 contains the largest impacts to wetlands and converts 3 acres of wetland to roads in Sunny Creek, 30 acres in Monie Creek, and 5 acres in Saltery Creek (refer to Table 3-45).

Swanston and others (pers. comm. Sept. 9, 1997) found that on a gently sloping poor fen, the hydrologic effects of a forest road were limited to approximately 50 feet of the road. On more permeable soil materials, the hydrologic effects could extend further from the road. Placement of culverts and the use of coarse rock roads help to maintain flow and reach of water in wetlands.

Table 3-44: Acres of Proposed Harvest on Forested Wetlands by Wetland Habitat Type, Major Watershed, and Alternative

Alternative and Wetland Habitat	Watershed				Total Acres
	Monie Cr.	Saltery Cr.	Sunny Cr.	Other	
Alternative 2					
Alpine Shrubland/Short Sedge Complex	0	0	1	0	1
Forested Wetland/Short Sedge Complex	19	0	1	13	33
Forested Wetland/Non-Wetland Complex*	296	61	41	181	578
Forested Wetland	22	7	9	110	148
Scrub-Shrub/Short Sedge Complex	0.2	0	0	0.4	1
Tall Sedge Fens	0	0	0	0	0
Lakes and Ponds	0	0	0	0	0
Proposed Wetlands Harvest	337	68	52	304	761
Upland Harvest	42	85	218	405	750
Total Harvest Acres	379	153	270	709	1511
Alternative 3					
Alpine Shrubland/Short Sedge Complex	0	0	1	0	1
Forested Wetland/Short Sedge Complex	19	0	1	12	32
Forested Wetland/Non-Wetland Complex*	296	61	41	162	560
Forested Wetland	22	7	9	109	147
Scrub-Shrub/Short Sedge Complex	0.2	0	0	0.5	1
Tall Sedge Fens	0	0	0	0	0
Lakes and Ponds	0	0	0	0	0
Proposed Wetlands Harvest	337	68	52	284	741
Upland Harvest	41.9	85	218	403	748
Total Harvest Acres	379	153	270	687	1489
Alternative 4					
Alpine Shrubland/Short Sedge Complex	0	0	1	0	1
Forested Wetland/Short Sedge Complex	19	0	1	2	22
Forested Wetland/Non-Wetland Complex*	183	61	41	46	331
Forested Wetland	5	7	9	11	32
Scrub-Shrub/Short Sedge Complex	0.2	0	0	0.5	1
Tall Sedge Fens	0	0	0	0	0
Lakes and Ponds	0	0	0	0	0
Proposed Wetlands Harvest	207	68	52	60	387
Upland Harvest	38	85	219	213	554
Total Harvest Acres	245	153	270	273	941
Alternative 5					
Alpine Shrubland/Short Sedge Complex	0	0	1	0	1
Forested Wetland/Short Sedge Complex	19	0	1	13	33
Forested Wetland/Non-Wetland Complex*	295	61	41	181	578
Forested Wetland	22	7	9	109	147
Scrub-Shrub/Short Sedge Complex	0.2	0	0	0.5	1
Tall Sedge Fens	0	0	0	0	0
Lakes and Ponds	0	0	0	0	0
Proposed Wetlands Harvest	336	68	52	304	760
Upland Harvest	42	85	219	405	751
Total Harvest Acres	378	153	271	709	1511

Table 3-44: Acres of Proposed Harvest on Forested Wetlands by Wetland Habitat Type, Major Watershed, and Alternative (Continued)

Alternative and Wetland Habitat	Watershed				Total Acres
	Monie Cr.	Saltery Cr.	Sunny Cr.	Other	
Alternative 6					
Alpine Shrubland/Short Sedge Complex	0	0	1	0	1
Forested Wetland/Short Sedge Complex	19	0	1	13	33
Forested Wetland/Non-Wetland Complex*	295	61	41	181	578
Forested Wetland	22	3	9	109	143
Scrub-Shrub/Short Sedge Complex	0.2	0	0	0.5	1
Tall Sedge Fens	0	0	0	0	0
Lakes and Ponds	0	0	0	0	0
Proposed Wetlands Harvest	336	64	52	304	756
Upland Harvest	42	69	218	401	730
Total Harvest Acres	378	133	270	705	1486
Alternative 7					
Alpine Shrubland/Short Sedge Complex	0	0	0	0	0
Forested Wetland/Short Sedge Complex	0	0	0	10	10
Forested Wetland/Non-Wetland Complex*	0	1	0	113	114
Forested Wetland	0	6	0	8	14
Scrub-Shrub/Short Sedge Complex	0	0	0	0	0
Tall Sedge Fens	0	0	0	0	0
Lakes and Ponds	0	0	0	0	0
Proposed Wetlands Harvest	0	7	0	131	138
Upland Harvest	0	29	0	184	213
Total Harvest Acres	0	43	0	446	489

*Half of the Forested Wetland/Non-wetland Complex is Non-wetland.

During the road location process, estuaries and tall sedge fens were avoided. In addition to avoiding high value wetlands, functional assessments of individual wetlands were made and the road located to minimize impacts (Appendix C). The major factors considered in the functional assessment included impacts to water quality, fish or wildlife habitat, economic trade-offs, and locally scarce or unique features of the wetland.

Road locations are adjacent to high value wetlands in Monie Creek Watershed under Alternative 5. The wetlands include riparian associated tall sedge fens located near the end of the 2180-2 road and just downslope of the 2180400 road. Other important wetlands in the Monie Creek basin occur southeast of Unit 616-012 and along the 2180300 road between Units 616-013 and 616-016 (Appendices B and C). The road systems of Sunny and Saltery Coves completely avoid the high value wetlands.

Table 3-45: Miles of Proposed Road on Wetlands and Area Affected

Alternative and Wetland Habitat	Watershed				Total	
	Monie Creek	Saltery Creek	Sunny Creek	Other	Miles	Acres
Alternative 3						
Alpine Shrubland/Short Sedge Complex	0	0	0	0	0	0
Forested Wetland/Short Sedge Complex	0	0	0	0	0	0
Forested Wetland/Non-Wetland Complex*	0	0	0.27	0.68	0.95	5
Forested Wetland	0	0	0.26	0.62	0.88	4
Scrub-Shrub/Short Sedge Complex	0	0	0	0	0	0
Tall Sedge Fens	0	0	0	0	0	0
Lakes and Ponds	0	0	0	0	0	0
Total Miles of Road in Wetlands	0	0	0.53	1.30	1.83	9
Roads in Uplands	0	0	1.90	1.25	3.15	15
Total Miles of Road for Alt 3					4.97	24
Alternative 4						
Alpine Shrubland/Short Sedge Complex	0	0	0	0	0	0
Forested Wetland/Short Sedge Complex	0.18	0	0	0.52	0.71	3
Forested Wetland/Non-Wetland Complex*	3.04	0.99	0.27	1.46	5.76	28
Forested Wetland	0.24	0	0.26	2.12	2.62	13
Scrub-Shrub/Short Sedge Complex	0	0	0	0.25	0.25	1
Tall Sedge Fens	0	0	0	0	0	0
Lakes and Ponds	0	0	0	0	0	0
Total Miles of Road in Wetlands	3.46	0.99	0.53	4.35	9.34	45
Roads in Uplands	0.61	1.37	1.90	4.29	8.17	39
Total Miles of Road for Alt 4					17.51	84
Alternative 5						
Alpine Shrubland/Short Sedge Complex	0	0	0	0	0	0
Forested Wetland/Short Sedge Complex	0.18	0	0	0.74	0.92	4
Forested Wetland/Non-Wetland Complex*	5.0	0.99	0.27	3.76	10.02	48
Forested Wetland	1.07	0	0.26	4.19	5.52	26
Scrub-Shrub/Short Sedge Complex	0	0	0	0.25	0.25	1
Tall Sedge Fens	0	0	0	0	0	0
Lakes and Ponds	0	0	0	0	0	0
Total Miles of Road in Wetlands	6.25	0.99	0.53	8.69	16.71	79
Roads in Uplands	1.34	1.37	1.90	4.31	8.92	43
Total Miles of Road for Alt 5					25.63	122
Alternative 6						
Alpine Shrubland/Short Sedge Complex	0	0	0	0	0	0
Forested Wetland/Short Sedge Complex	0.18	0	0.0	0.31	0.49	2
Forested Wetland/Non-Wetland Complex*	5.0	0	0.27	2.32	7.59	36
Forested Wetland	1.07	0	0.26	2.54	3.87	19
Scrub-Shrub/Short Sedge Complex	0	0	0	0.71	0.71	3
Tall Sedge Fens	0	0	0	0	0	0
Lakes and Ponds	0	0	0	0	0	0
Total Miles of Road in Wetlands	6.25	0	0.53	5.88	12.66	60
Roads in Uplands	1.34	0	1.90	2.70	5.94	29
Total Miles of Road for Alt 6					18.6	89

Table 3-45: Miles of Proposed Road on Wetlands and Area Affected (Continued)

Alternative and Wetland Habitat	Watershed				Total	
	Monie Creek	Saltery Creek	Sunny Creek	Other	Miles	Acres
Alternative 7						
Alpine Shrubland/Short Sedge Complex	0	0	0	0	0	0
Forested Wetland/Short Sedge Complex	0	0	0	0	0	0
Forested Wetland/Non-Wetland Complex*	0	0	0	0	0	0
Forested Wetland	0	0	0	0	0	0
Scrub-Shrub/Short Sedge Complex	0	0	0	0	0	0
Tall Sedge Fens	0	0	0	0	0	0
Lakes and Ponds	0	0	0	0	0	0
Total Miles of Road in Wetlands	0	0	0	0	0	0
Roads in Uplands	0	0	0	0	0	0
Total Miles of Road for Alt 7					0	0

* Half of the Forested Wetland/Non-wetland complex is non-wetland.

The effects of timber harvest on the beneficial functions of forested wetlands are expected to be temporary, especially in the partial harvest units. Approximately 50 percent of the trees would remain standing after harvest in these units. In clearcut units, the effects of harvest on site hydrology would probably last longer, but are still expected to be temporary.

Fisheries

Affected Environment

Project area streams contain important anadromous and resident fish habitats. The streams support four species of anadromous salmon (pink, chum, sockeye, and coho), as well as resident coastal cutthroat trout, rainbow/steelhead trout, and Dolly Varden char. King salmon are present in marine habitats adjacent to the project area, but do not spawn in its streams. These fish species are important to the subsistence, sport and commercial fisheries of the region, and are a major food source for some wildlife species.

Sport fishing has been documented in Swan Lake, Monie Lake, and Clover Lake. The target species are primarily coastal cutthroat trout, rainbow trout, and Dolly Varden char. Salmon produced within the project area contribute to commercial fisheries (seine, troll, and drift gillnet). Sunny Creek has the highest escapement (adult anadromous fish that escape from all causes of mortality to return to streams to spawn) of pink and chum salmon within the project area. Sunny Creek is the only watershed in the project area with yearly escapement count data, targeting pink salmon. Saltery Creek and Monie Creek both have coho runs and Monie Creek also has a sockeye run. Relatively large runs of coho, steelhead, and sockeye are also present in the stream flowing into the southwest side of Clover Bay. A fish pass was constructed on Sunny Creek in 1984 to increase habitat for pink salmon.

There are 2,522 acres of lake habitat in the Cholmondeley Project Area. Many of the lakes contain resident fish, primarily Dolly Varden and cutthroat. Rainbows were stocked in Clover Lake so they are present throughout the Clover Lake drainage.

High density fish habitat areas were identified in the lower one mile of Sunny Creek (pink and chum), the lower mile of Clover Creek (coho, pink, and chum), the west end of Monie Lake (coho and sockeye), and the south end of Swan Lake at Saltery Cove (coho). These are areas where spawning and high density rearing occurs.

Direct and Indirect Effects

We expect no adverse effects on fisheries or their productivity under any alternative. Road construction and use pose the greatest potential risk to riparian resources and fish habitat. Roads affect fish habitat through the introduction of fine sediment, and rerouting of sediment-laden water. Road construction also has the potential to affect upstream fish passage through improper placement or sizing of culverts. Forest Plan Standards and Guidelines call for design and installation of culverts that will meet standards for fish passage.

No riparian area harvest would occur along any Class I, II or III stream under any alternative. Removal of riparian vegetation through timber harvest affects fish habitat and fish populations by increasing sediment inputs into streams, changing stream temperature and dissolved oxygen levels, changing the input of large woody debris, and altering the delivery of water to streams. There is the possibility of loss of trees within riparian areas due to future windthrow; however, significant adverse effects to fish habitats or populations are not anticipated. The extension of buffers beyond the RMAs provides additional wind resistance and reduces windthrow potential within the RMAs.

Cumulative Effects

The potential for cumulative effects on watershed and fisheries resources varies throughout the project area. The only previous timber harvest in the project area was 132 acres in Saltery Cove and McKenzie Inlet. The effects on watershed resources were relatively minor because the watersheds are small and drain directly into saltwater, and no roads were constructed.

Though timber harvest beyond what is proposed in this analysis is not anticipated in the Cholmondeley Project Area in the foreseeable future, the timber is designated as suitable and available in the Forest Plan. Due to the high density of wetlands on the project area, the proportion of wetlands converted to roads is relatively small. If all tentatively suitable and available land on the project area were logged with a road-density-to-volume-harvested ratio similar to Alternative 5, roads would cover about 342 acres of wetlands. On individual watersheds, about 0.01 percent of the wetlands would be converted to roads in Sunny Creek; 14.2 percent in Monie Creek and about 0.06 percent in Saltery Creek (Floodplains, Soils, and Wetlands Resource Report, project file).

The cumulative effects of converting a portion of the wetlands within a watershed to roads are largely unknown. To fill this information gap the Forest Service is in the process of developing protocols for determining the effects of road construction on wetlands, as required by the Tongass land Management Plan. At this time the information gap is considered acceptable based on information provided by Swanston and others (personal communication, 1997) and McGee (2000 unpublished). The bulk

of the wetlands affected by activities in this sale and potential future sales belong to the forested wetlands type. As displayed in the previous paragraph, the Monie Creek watershed would likely have the greatest percentage of wetlands converted to roads. The impacts caused by the harvest of the remaining tentatively suitable lands in the Monie Lake Watershed should not greatly alter streamflow or destroy any unique or high value wetlands.

The natural genesis and morphology of floodplains can be altered by changes in streamflow within a watershed and direct changes in channel location through road construction. Given the limited amount of timber harvest and road construction proposed in watersheds with floodplains, no long-term cumulative effects are expected from implementation of any of the alternatives on floodplains.

The project area contains 935 acres of land encumbered by the State of Alaska and Sealaska Corporation. At this time, there are no plans to log these lands. However, in the worst-case scenario, if the private land was entirely harvested, the watershed resources that would be affected are at the mouth of Saltery Creek and three small anadromous streams in Saltery Cove. Fish habitat conditions are expected to change as a higher percentage of a watershed is logged or roaded. These potential worst-case scenario changes include: increased sediment loads which affect spawning habitat, increased peak flows which alter channel morphology, reduced low flows which limit habitat area during critical periods, decreased woody debris loads, reduced streambank stability, pool spacing and depth, and wider fluctuations of stream temperature which stress fish populations.

Timber harvest on state or Sealaska lands must follow the Alaska Forest Resources and Practices Regulations (FRPR) (January 2000). The FRPR are part of the state's approved non-point source pollution control strategy. Under the FRPR, buffers are left on fish streams and state approved BMPs will be used to protect water quality. Forestry operations on Forest Service lands will be conducted using BMPs documented in the Soil and Water Conservation Handbook (October 1996), which was approved by the state as being consistent with the FRPR in 1997.

There are few unharvested watersheds in the area surrounding the Cholmondeley Project Area. The south side of Cholmondeley Sound, Sulzer Portage, Skowl Arm, and the Kasaan Peninsula have all experienced intense logging. Within the project area, logging is being proposed on 50 percent of the watersheds though the actual land area that would be logged is 3 percent of the project area. The result of these activities is fewer high quality refugia for fish populations during periods of stress.

The intent of Region 10 Soil Quality Standards is to maintain soil productivity over a project area. The standards allow up to 15 percent of a project area to be in detrimental condition. Based on past monitoring (Landwehr, 1998, 1999) soil disturbances and landslides resulting from timber harvest will be well within soil quality standards. We do not anticipate that the proposed harvest and any possible future harvest will degrade soil productivity below the standards.

The off-site effects of soil erosion from roads, soil displacements, and landslides are not easily quantifiable and no watershed-wide quantification of sediment and its effects on fisheries resources has been completed on the Cholmondeley Project Area. The Watershed Analysis (project file) used the sediment risk analysis information, air photo

interpretation, and ground reconnaissance to evaluate the potential effects of timber harvest activities in each watershed. BMPs are intended to keep surface erosion to a minimum (Appendix B and C). The off-site effects of surface erosion and landslides are expected to be temporary and similar to the natural variation of sediment load and turbidity in all watersheds.

Essential Fish Habitat

Essential Fish Habitat (EFH) is the water and substrate necessary for fish spawning, breeding, feeding, or growth to maturity. The EFH for the salmon fisheries in Alaska include estuarine and marine areas from tidally submerged habitat to the 200-mile exclusive economic zone (EEZ). The freshwater EFH includes streams, rivers, lakes, ponds, wetlands and other bodies of water currently and historically accessible to salmon. EFH for Pacific salmon recognizes six critical life history stages: (1) spawning and incubation of eggs, (2) juvenile rearing, (3) winter and summer rearing during freshwater residency, (4) juvenile migration between freshwater and estuarine rearing habitats, (5) marine residency of immature and maturing adults, and (6) adult spawning migration. Habitat requirements within these periods can differ significantly and any modification of the habitat within these periods can adversely affect EFH.

Section 305(b) (2) of the Magnuson-Stevens Fishery Conservation and Management Act states that all federal agencies must consult the National Marine Fisheries Service (NMFS) for actions or proposed actions that may adversely affect Essential Fish Habitats. The Act promotes the protection of these habitats through review, assessment, and mitigation of activities that may adversely affect these habitats. On August 25, 2000 the Forest Service, Alaska Region, and NMFS came to an agreement of what this consultation entails. This environmental impact statement (DEIS) satisfies the consultation requirements by providing a description and assessment of EFH in the project area, a description of the Cholmondeley Timber Sale project area and its potential impacts on these habitats, and a description of the mitigation measures that will be implemented to protect these habitats.

The formal consultation started when NMFS received a copy of the draft environmental impact statement (DEIS)) with the EFH Assessment. NMFS would have then responded in writing as to whether it concurred with the findings of the assessment or made conservation recommendations. The Forest Service would have then had the obligation to respond to any conservation made by recommendations NMFS within 30 days.

NFMS did not respond to the Draft EIS. Conversation with NMFS between the Draft EIS and Final EIS again alerted them to the project. The assessment is repeated in this Final EIS. This satisfies the consultation requirements by providing a description and assessment of Essential Fish Habitat in the project area, a description of the Cholmondeley Timber Sale project area and its potential impacts on these habitats, and a description of the mitigation measures that will be implemented to protect these habitats. The forest service will remain open to future

Affected Environment

Essential Fish Habitat includes all freshwater streams accessible to anadromous fish, marine waters, and intertidal habitats. For the Cholmondeley Project, this would include all Class I streams and the marine waters and intertidal habitats along the

project area shoreline (Figure 2-1). More detailed maps and fish habitat protection measures are displayed for each unit and road (Appendix 2 and Appendix 3, respectively).

Direct and Indirect Effects

The Forest Service's position is that the proposed action may adversely affect Essential Fish Habitat. However, these effects will be mitigated by following the standards and guidelines in the Forest Plan and the Best Management Practices. These measures include:

1. Proposed road crossings on Class I and II streams will be constructed to provide upstream passage for fish at all life stages, and constructed when anadromous fish eggs will not be in the gravel.

2. All harvest units adjacent to Class I and II streams employ no-harvest buffers at least 100 feet wide and wider according to Forest Plan Standards and Guidelines.

3. Harvest adjacent to Class III streams includes slope break buffers to prevent detrimental effects on downstream fish habitat.

4. Log transfer facilities will be constructed in areas of low marine sea floor diversity with good flushing action. Forest Plan Standards and Guidelines will be followed, along with Environmental Protection Agency Guidelines. These are discussed in road cards, Appendix E, and the LTF section in Chapter 3.

The BMPs described on the unit and road cards provide assurance of water quality and aquatic habitat protection for all freshwater streams and marine waters affected by the project.

The Forest Service believes that these state-of-the art mitigation measures will avoid or minimize the effects of this timber sale on Essential Fish Habitat to currently acceptable levels. Impacts to EFH are unlikely to occur if the mitigation measures are implemented properly and likely to occur only from unforeseen events.

Recreation

Access to the interior of the project area is primarily through Saltery Cove, Spiral Cove, Trollers Cove, Clover Bay and Sunny Cove. Float plane access occasionally occurs at Monie and Clover Lakes. Access is very difficult because of the rugged terrain and dense underbrush. Recreation use in the interior of the project area is assumed low and most use occurs near the shoreline. The main values of the area include the scenic backdrops and solitude marketed and used by local businesses and residents, especially when they are engaged in water-based activities. Some residents of Sunny and Saltery Coves subsistence hunt in the area along with occasional hunters from Kasaan or sport hunters from Ketchikan.

The project area is noted for its many scenic coves and freshwater lakes. Opportunities exist to manage the area for developed and dispersed recreation in a semi-primitive to primitive setting. Opportunities include trails from the protected east side coves to the many lake basins and opportunities for land and water based fishing resorts. The

Clover Bay LTF and closed road heading could provide boat moorage and hiking opportunities in the future.

Ninety percent of the project area is classified as Primitive (Forest Plan FEIS, page 3-102). Most of the project area is over 2 miles from the nearest road system located at the south end of McKenzie Inlet. This and the absence of any facilities and any other development except in the three concentrated areas, give the area its primitive and remote character. Because of the concentration of a developed resort facility and several residences in Saltery Cove, and several residential structures in Sunny Cove, the area around these two communities is classified as Rural. Beyond these rural areas and the roaded and logged areas around McKenzie Inlet is a transition zone classified as Semi-Primitive Non-Motorized, which by definition is generally less remote than a Primitive area. Proposed harvest and road construction activities are concentrated in three areas that leave large, undeveloped areas between them.

Direct and Indirect Effects

Lands classified as Primitive in the Recreation Opportunity Spectrum (ROS) are generally 1.5 to 2.0 miles from roads and harvest units. Lands in the transition zone between the Primitive boundary and the roads and units are classified as Semi-Primitive Non-Motorized. Under Alternatives 2, 3, and 5, 18,074 acres are classified as Primitive and 16,809 acres as Semi-Primitive Non-Motorized. The combination of these areas, 34,883 acres, represents the remaining undeveloped area (Recreation, Roadless Areas, Wild and Scenic Rivers, and Wilderness Report, project file). The undeveloped area remaining in Alternative 4 would be 40,819 acres. Approximately 26,404 acres would be classified as Primitive and 14,415 acres would be classified as Semi-Primitive Non-Motorized (Recreation, Roadless Areas, Wild and Scenic Rivers, and Wilderness Report, project file). Alternative 6 undeveloped area remaining is 37,541 and alternative 7 is 46,187 acres.

Cumulative Effects

Saltery Cove and Sunny Cove

There is a concern that the construction of a LTF and the development of a road system from the LTF in McKenzie Inlet and Sunny cove could result in the introduction of motorized recreation use on this system (three- or four-wheeled ATVs). However, we do not anticipate this vehicle use because culverts and bridges will be pulled, roads will be put in storage, and road closure orders will be enforced. In any case, the existence of the road beds will make access through these roaded areas easier for hikers and hunters, and would probably increase the numbers and concentration of users to a small degree.

Clover Bay

The construction of a LTF and the development of a road system from this LTF could result in the introduction of motorized recreation use on this system. This could include the use of three- or four-wheeled ATVs or, more likely, motorbikes. The use of these vehicles, however, would be significantly limited if culverts and bridges are pulled, roads put in storage as planned, and the LTFs restored, to some degree, to their natural condition. In any case, the existence of the road beds will make access through these roaded areas easier for hikers and hunters, and would probably increase the

numbers and concentration of users to a small degree. Any motorized use as described above that was introduced in the vicinity of Clover Bay Lodge could be audible to clients staying at the lodge. Though this might be only periodic and infrequent, it would reduce the feeling of remoteness now experienced by the resort clients. Most activity would probably occur after the lodge season was completed.

Scenery

A discussion of the key viewsheds in this project area and the impacts to them from the different alternatives has been presented in front of this chapter as part of the analysis of the Sunny Creek, Clover Bay and Saltery Cove areas. In addition to these viewsheds, the scenery of Trollers Cove would also be affected by harvest activities in the project area. The outer portion of Trollers Cove is characterized by rolling forested terrain on the eastern side and very steep forested slopes on the western side of the bay. The inner portion of the cove is a narrow secluded space with gentle rolling terrain on the east side and very steep slopes at the head of the cove and along the west shore. Rock cliffs are exposed in a few places on these south and west slopes. This area is in a natural, unaltered state except for the recreation cabin located on the south shore of the outer bay. The east and south shore is allocated to the Timber Production LUD and the west shore to the Old-growth Habitat LUD. The VQOs in the Timber Production area are Maximum Modification in the middleground and Modification in the foreground. The Old-growth Habitat VQO is Retention.

Direct, Indirect, and Cumulative Effects

Under Alternatives 1 and 4, the scenic character described above would be retained. Under Alternatives 2, 3, and 5, Unit 616-024 would attain a VQO of Partial Retention and Unit 616-025 would have a VQO of Modification (Recreation, Roadless Areas, Wild and Scenic Rivers, and Wilderness Report, project file).

Under Alternative 6, the LTF proposed just to the west of Island Point will not be visible from within Trollers Cove or from the Forest Service cabin. However it will be clearly visible from boats traveling into the cove, and from positions in Clarence Strait, mainly to the east, south, and west of Patterson Island. The major impacts of this LTF will be the large fill and bulkhead that will be placed just out from the shore to accommodate the barging of logs, and a large rock pit that will have to be excavated behind this fill. This fill will be approximately 150 ft. wide and the back wall of the pit will be at least 20-25 feet high. A log storage area and additional operating areas will also be part of the development, but will be at least partially screened by shoreline vegetation. The overall scale and impact of this development will be much greater than the LTF design proposed for Clover Bay. It will only meet a maximum modification VQO since it will be such a dominant feature from a few miles off shore. Rehabilitation of the site, including some re-contouring of the flat log dumping area, creating some sloping ground at the base of the rock pit, and then re-seeding the entire site would enable the area to meet a Modification VQO after the site greens up.

In Alternative 6, impacts from the two units visible from the cove (616-024 and 615-025) will be the same as in Alternatives 2 and 3, since the harvest prescriptions are identical and units are logged by helicopter, as in Alternatives 2 and 3. A small portion of unit 616-024 will be cable yarded and more visible than the helicopter yarded portion.

In Alternative 7, Unit 615-025 is the only unit in the Trollers Cove area. The impacts from this unit are the same as in Alternatives 2-6. However, this alternative drops Unit 616-024 that sits above the Trollers Cove cabin, so there are no visual impacts from the portion of the cove out in front of the cabin.

Unit 616-024 sits on a slope above the Trollers Cove cabin and is visible from the outer portion of the bay. Corridors of trees would be retained over much of this unit and the backline would be lowered and feathered. Unit 615-025 sits on the slopes above the inner part of the bay. The western half of this unit is most visible as it sits in the middle of a uniform, steep slope at the focal point of this bay. This unit is not visible from the cabin and would have no effect on the scenic quality from that vantage point (Figure 3-3). Overstory removal is the prescription for this unit, which cuts trees over 21 inches diameter-breast-height (DBH). The amount of retained structure in the more visible western portion of the unit may not be enough for the harvest to blend with the surrounding forest. Helicopter yarding allows the retention of smaller diameter trees, which may soften the visual impacts.

In viewsheds where clearcutting with reserves (even-aged management) is the predominant treatment, such as the landscape between Monie Lake and Trollers Cove facing Clarence Strait, the establishment of second-growth stands with a significant degree of texture in them will occur in 10-20 years and will soften the impact of the original harvest. These areas will probably meet a partial retention of modification VQO by the end of this time. Within about 35-50 years, the size of the second growth and the texture created will remove the impact of the harvest to the point where the casual forest visitor would not notice the harvest. At this point, this activity would meet retention VQO. Keep in mind that, due to this one-entry proposal, these "longer term" effects will not be added to other effects. Thus, cumulative effects will be equal to the direct effects of this proposal.

Heritage Resources

Evaluation of the potential effects of planned project activities on heritage resources (historic and archaeological sites) followed the procedures outlined in #02MU-111001-076 between the Alaska Region of the Forest Service, the Alaska State Historic Preservation Office, and the Advisory Council on Historic Preservation. This agreement modifies standard procedures as described in Section 106 of the National Historic Preservation Act (1966). A review of existing archaeological information within and near the Cholmondeley Project Area found three historic and archaeological sites. These include an early 20th century portage route (corduroy road) associated with mining activities (Alaska Heritage Resource Survey #49-CRG-044), a reported but unverified Haida fort (AHRS #49-CRG-028, Sealaska 1975), and a historic Native camp with a structure (AHRS #49-CRG-181). Goldschmidt and Haas (1946: 152-154) cite Native oral history of a "village" and associated features in Sunny Cove, a camp called "Gahi" in West Arm, and a general pattern of trapping and seining throughout Cholmondeley Sound. Goldschmidt and Haas (1998:88) also cite James Peele (#84) who describes a village in Khayyam Bay, now called Saltery Cove. Davis and Lobdell (Heritage Resources Report, Polk EIS) revisited the Sulzer Portage site and recorded no new sites in the current project area. All of these reported cultural properties are located near the coast.

Cholmondeley Sound was also the focus of intense mining exploration and extraction during the early decades of 20th century (Roppel 1991). Though the larger mines were not in this immediate area, activities associated with them did occur in the project area.

Forest Service archaeologists surveyed the portions of the project area considered most likely to contain historic and archaeological sites as well as a sample of less likely areas within planned timber harvest units. Fifty-six kilometers of shoreline were evaluated for heritage resource potential from small boat, and then on foot in those areas where human occupation seemed possible and landing was feasible. These efforts were guided by a predictive model based on the results of past surveys on the Tongass National Forest (#02MU-111001-076) as well as the literature review. Survey focused on two "vicinities," or stretches of coastline. Vicinity one is the north shore of West Arm, Cholmondeley Sound. Vicinity two is the Clarence Strait shoreline from Clover Bay north to Trollers Cove. Nine planned timber harvest units were also evaluated through pedestrian surveys. In addition, three inland lakeshores adjacent to planned harvest units were surveyed. The total area surveyed was approximately 900 acres (Heritage Resource Report, project file). Other field personnel were cross-trained to recognize archaeological features so they could alert the archaeological crew of other potential sites, if found.

One historic site (49-CRG-503) was located during the survey. The site consisted of several concentrations of historic debris (lumber, cans, bottles) and the footprints where structures once stood. A road grade was recognizable leading to the west. All buildings, which may have once stood there, had been removed. Given the type of debris present and the site location, this is likely the west end of the Sulzer Portage Road. It was recommended that the site not be considered eligible for the National Register of Historic Properties due to the severe damage and disturbance that has already occurred.

No other new sites were recorded. Efforts to relocate the Haida fort (49-CRG-028) and Native camp (49-CRG-181) were unsuccessful. Intensive survey of the Sunny Cove shoreline did not reveal signs of the reported Native village (Goldschmidt and Haas 1998:88). Similarly, the village reported to be in Saltery Cove was not located. Forest Service archaeologists did not survey state or private lands. A scattering of culturally modified trees, representing the area's use for bark collecting and trapping, was noted throughout the project area.

The Clover Bay Lodge owners identified areas of possible archaeological concern in Clover Bay. Forest Service archaeologists conducted a surface survey of the area and recorded several culturally modified trees (CMTs). They also excavated a test pit but recovered no cultural materials.

As required by the Forest Plan, a 1000 foot, no-cut beach buffer has been applied to the entire Cholmondeley Planning Area. This effectively removes all known historic properties from the area of direct effects. Similarly, stream and lakeshore buffers protect areas of high sensitivity. No heritage resources were noted in any of the surveyed harvest units. All planned harvest units fall within areas we consider unlikely to contain heritage resources.

The Heritage Resources Report for the Cholmondeley Project Area, containing a determination of no effect, was mailed to the Alaska SHPO for consultation under

Section 106 of the National Historic Preservation Act on April 8, 2001. No response from SHPO was received. The Act provides for a 30-day consultation period for SHPO review and comment. No response is taken as concurrence under the Act.

Tribal consultation, under the terms of the National Historic Preservation Act (1966 as amended) was conducted with all affected tribes and ANCSA corporations on Prince of Wales Island, In Metlakatla, and in Ketchikan. In addition, letters of consultation were sent to Sealaska Corporation and the Central Council of Tlingit and Haida Tribes of Alaska. A response was received from the Organized Village of Kasaan (OVK). Discussion of OVK's concerns was incorporated into the planning process.

Karst Resources

Karst is a comprehensive term that applies to the unique topography, surface, and subsurface drainage systems and landforms that develop by the action of water on soluble rock; in the case of Southeast Alaska, limestone and marble. The dissolution of rock results in the development of internal drainage, producing sinking streams, closed depressions, and other solutional landforms such as sinkholes, collapsed channels, and caves (White et al. 1995).

The geology and climate of Southeast Alaska are particularly favorable for karst development. The harvest units planned on top of or adjacent to carbonates were inventoried by the Forest Geologist and a soil scientist (Geology, Minerals, and Karst Resources, project file). Marble was found to underlie unit 674-032 and portions of unit 675-032. Karst development was limited and the harvest units were designed to avoid these areas. Though karst topography and subsurface drainage systems are developed in the carbonate substrate, no caves have been found. In addition, no karst was found in any of the domestic watersheds and there is a low probability of the karst ground waters contributing to those watersheds.

The Forest-wide karst and caves Standards and Guidelines categorize karst areas on their vulnerability for being adversely affected by management activities. The karst lands of the project area tend to be of low to moderate vulnerability with inclusions of high vulnerability. The highly vulnerable areas are both discrete karst features and areas of intense epikarst (surface) development, generally at higher elevations. High vulnerability karst areas have been identified and removed from timber harvest consideration (Geology, Minerals and Karst Resources, project file). The drainages that feed these areas are protected. The karst resource assessment determined that the moderate and low vulnerability areas would be suitable for timber harvest given the proposed partial cut prescriptions and partial suspension yarding requirements. No roads are planned within the karst areas.

By protecting the high vulnerability karst areas, losing streams, and their drainages, there is little chance of sediment or organic material entering the karst hydrologic systems of the project area. The epikarst is moderate- to well-developed, and is sometimes visible at the surface. The soils are a mosaic of shallow organic soils, mineral soils and glacial till. The mineral and glacial soils infill or cover the epikarst channels. There should be little opportunity to move sediment and debris vertically into the karst hydrologic systems if soil disturbance is minimized. Partial suspension logging systems are required on karst lands to minimize soil disturbance (Appendix B).

Direct and Indirect Effects

Alternatives 2, 3, 5 6, and 7 each propose harvest on 8.6 acres of karst in Unit 674-032 and Alternatives 2, 3, 5, and 6 propose harvest on 22.6 acres in Unit 675-032. These areas are all moderate vulnerability karst areas. The yarding system will be required to achieve partial suspension to protect soils. If high vulnerability inclusions were discovered during layout, they would be excluded from harvest. The cumulative percentage of total karst in a harvested condition from past and proposed timber management would be 8 percent under Alternatives 2, 3, 5 6, and 7. Both units will be harvested by helicopter, causing minimal soil disturbance. Harvest in the western half of 675-032 and 674-032 will remove 40–50 percent of the timber volume from two-acre groups. This should retain much of the forest structure, lessening the effect of diffuse recharge in to the karst groundwater system. Alternative 4 does not harvest either Unit 674-032 or 675-032.

Facilities

The Craig Ranger District Office is located approximately 35 miles northwest of the project area in Craig, Alaska. There are no logging camps or Forest Service administrative sites in the Cholmondeley Project Area. There is one Forest Service cabin at Trollers Cove in the northeast corner of the project area. Potential logging camps are discussed under Issues 1-3.

Log Transfer Facilities

The transfer of harvested timber may require that logs be placed in bays or coves, and rafted to their destination. There are no log transfer facilities (LTFs) presently in the project area.

Each LTF requires a log storage area, a small airplane and boat dock, an equipment off-loading ramp, and a log raft storage area for land-to-water transfers, all of which are part of the LTF permitting process. Log sort yard areas are sometimes required depending on the amount and type of use the LTF will have. These areas are usually required for barge facilities where storage and sorting by raft is not possible. These facilities are generally located within close proximity of the LTF to reduce costs and retain impacts within a localized area.

Log Transfer Methods

Four log transfer methods were considered in this analysis: (1) A-frame type entry device with rafting facilities; (2) low-angle ramp, float-off type facility; (3) land-to-barge facility; and (4) helicopter-to-water- or barge facility.

A-Frame

This method uses a stationary A-frame boom with sloping guide rails placed on the bulkhead to guide the logs to deep water at lower tide levels. Both A-frame systems, single and double A-frames, allow controlled entry of logs into the water. A-frame systems require a minimum of 5 feet of water at low tide. There is a significant investment in equipment to operate at this type of site. The A-frame type of site requires that the trucks be unloaded at the LTF site and the logs placed in the water to be placed in rafts. This type of LTF requires an area approximately 120 feet in diameter for the trucks to turn around plus room for the A-frame equipment. This type of configuration usually has a more adverse effect on the visual landscape than the low-angle ramp type of LTF.

Low-Angle Ramp

The low-angle ramp method consists of a shot-rock ramp with wood or steel rails on the surface extending in to the water. The ramp is sloped at 10 to 20 percent grade, usually the same slope as the ground to minimize the amount of fill required. Log bundles are walked down the ramp into the water by a rubber-tired log loader. The logs are then placed in a log raft. Low-angle ramps generally require a minimum of 5 feet of water at low tide and are available for use at all tide levels.

Land-to-Barge

The land-to-barge transfer system requires a deep-water bulkhead for the barge mooring facility. A minimum of 25 feet of water at low tide is required for large barge operations. Trucks are unloaded at the LTF site and then placed directly on the barge by a rubber-tired loader. This type of LTF requires an area approximately 120 feet in diameter for trucks to turn around. This type of operation usually has more adverse impacts on the visual landscape than the low-angle ramp configuration because the road must extend far enough to access deep enough water for the barge. The barge type of LTF also requires a log storage yard of three to five acres.

Some barge LTFs have been designed to have limited time operations due to tide restrictions. This type of design usually provides a minimum of 8 or 9 feet of water at low tide. Smaller barges are able to load logs for 2 to 3 hours before and after high tide. Designing the LTF in this manner has less effect on the marine habitat because the bulkhead does not extend as far in to the water. Barge LTFs restrict the time available for loading which increases the costs of transporting logs and necessitates the larger upland log storage area.

Helicopter to Water or Barge

The helicopter transfer of logs from land to water transportation consists of moving logs from the harvest area directly to the water. The logs are placed in a containment area (bag boom) where they are sorted and then loaded on a barge or moved by boom boat to a log raft or sort yard. An alternative of this system is to fly logs directly onto a barge where the logs have all remaining limbs removed and then move the logs to another barge for shipping. Any slash generated on the barge must be flown back to the harvest unit. When helicopter-to-water or barge operations are conducted in open, unprotected areas, the barges and other equipment are moved to more protected waters nearby at the completion of each day's operations.

Following a survey of the entire project area coastline, 15 sites were selected as potential LTFs. These sites were surveyed for their potential to meet the Alaska Timber Task Force Siting Guidelines for LTFs. The parameters for siting LTFs are:

1. Safety of operations in and around the LTF.
2. Locate the LTF on the least productive intertidal and subtidal zones.
3. Avoid sensitive habitats.
4. Avoid shallow water.
5. Locate LTFs in straits, channels, or deep bays where the current is strong enough to disperse sunken or floating wood debris.

The ATTF siting guidelines are contained in the planning record for this project and are listed in the Forest Plan.

The three sites identified in the alternatives (Chapter 2, Alternatives) are the preferred sites, and meet the Alaska Timber Task Force Siting Guidelines for LTFs. The U. S. Department of Interior (USDI) Fish and Wildlife Service have also accepted these sites as meeting the ATTF guidelines (Marine Environment, Log Transfer sites and Related Facilities, project file). All proposed LTFs would be developed as low-angle ramp systems, which have the least resource impacts and are more economical to construct and operate. If constructed, these LTFs would be operated under the required permits. The relatively low volume expected to be transferred at each site would keep impacts low. Each LTF would affect approximately 0.2 acres of shoreline. Approximately one acre of underwater area could be affected by bark accumulation.

All sites were evaluated for use of different types of LTFs for the transfer of logs. Some sites lend themselves to a particular type of transfer facility due to the topography and/or the resource concerns at each site. The low-angle ramp facilities were selected for the proposed sites for three primary reasons. First is the low impact on the marine environment. Due to the topography of the proposed sites, the low-angle ramps require less fill in the intertidal areas. Second, low-angle ramp facilities have a low-impact on the associated upland area because land-based log storage is not required. Instead, logs are placed in rafts in the water. Third, the visual impacts of a ramp operation can be kept to a minimum. The low visibility of the ramp system and minimal upland development give more opportunity for leaving screening vegetation.

The low-angle ramp system requires that logs be stored in log rafts in the water. The effects of the logs losing bark while being stored in the water are a concern. The amount of timber to be transferred across the LTFs is small and will be the only entry into the area until the next planned harvest, so any bark accumulation will have very short-term impacts on the marine environment. An alternative to raft storage is a barge type LTF that loads the logs directly on a barge. Barge loading facilities extend into deeper water so that the barge can be loaded for a minimum of four to six hours per high tide. This requires the barge loading ramp to be at a higher elevation and consequently has a much larger "footprint" on the marine environment. The footprint of the ramp on the marine environment would be a long-term impact to the intertidal areas. Barge loading facilities also require upland storage and sorting areas for the logs, usually three to five acres. However, this area may need to be larger if there are loading restrictions due to timing with the tides, etc. Storage and sorting areas on the uplands have long-term uplands and visual impact effects.

A-frame type LTFs are also an alternative for use in the proposed sites. A-frame type LTFs generally need a larger upland area immediately adjacent to the shoreline for unloading trucks and this has a detrimental effect on the visual resources. No sorting or log storage area is required on the uplands as logs are stored in rafts in the water. A-frames require only 5 feet of water at low tide to transfer logs, so can be used during any tide. A-frames do require a substantial investment in equipment to transfer the logs from the truck to the water. The investment in this type of equipment is only economical when large volumes of timber are being transferred and when the site is used over a long period of time. This option was eliminated for this proposal due to

the effects on the visual and marine resources and the economics of the large equipment investment.

Road connections to the existing Prince of Wales Island road system and LTFs were evaluated and determined to be physically infeasible or were not economically feasible. Road connections to consolidate activity at only one or two LTFs in the project area were also evaluated and found to be economically infeasible. In addition, building more roads or connecting to the existing island roads would have more resource impacts.

Transportation

The Cholmondeley Project Area contains no public transportation facilities (state highways, ferry dock, or airports). The project area currently has no existing roads on national forest system lands. The proposed roads for this project would not connect with the POW Island road system now or in the foreseeable future.

Roads are located to minimize disturbance on the land, yet provide access to resources. Thus, road locations generally follow routes of favorable terrain where practical (Table 3-45). Short-term roads (usually short spurs) are closed and/or obliterated after the completion of harvest.

Access Management - In general, the access management strategy would be to "prohibit" and "eliminate" road use. Access by motorized vehicles into newly entered drainages would be prohibited by a CFR closure order. In order to minimize resource impacts, motorized vehicle traffic will be prohibited with the exception of administrative traffic, which includes all traffic associated with timber sale activities.

Table 3-46: Miles of Planned Road by Action Alternative

	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7
Planned roads	0.0	4.6	15.5	22.3	16.4	0.0
Short-term roads	0.0	0.4	3.4	3.4	2.0	0.0
Total	**0.0**	**5.0**	**18.9**	**25.7**	**18.4**	**0.0**

Source: GIS Analysis

Road building mitigation measures are covered on the road cards (Appendix 2 of this EIS), in Chapter two under monitoring and items common to all alternatives in the monitoring plan and Appendix D of the Draft EIS.

Air Quality

All of the action alternatives would have limited, short-term effects on ambient air quality. Such effects, in the form of vehicle emissions and dust, are likely to be indistinguishable from other local sources of airborne particulates, including other motor vehicle emissions, dust from road construction and motor vehicle traffic, residential and commercial heating sources, marine traffic, and emissions from burning at sawmills. The action alternatives could result in short-term supplies of raw wood products to local mills. It is the responsibility of the mill owner to ensure that mill emissions are within legal limits.

Minerals

There are no known mineral occurrences of commercial value within the Cholmondeley Project Area. Field investigations by the U.S. Bureau of Mines during 1990 located no mines, prospects, or mineral occurrences in the project area (Maas, et

al. 1991). There are 11 mining claims registered with the BLM; however, there are no patented claims in the project area.

The proposed action would have no direct effect on mineral resources. The development of new roads would increase access for the surveying, mapping, and prospecting of mineral deposits.

Land Status

Under the Alaska Statehood Act of 1959, the State of Alaska is entitled to select for conveyance 400,000 acres of National Forest System lands within Alaska. The State was also allowed to identify for selection more acreage than would ultimately be conveyed. Other legislation granted Alaska Native corporations similar selection rights. There are Haida Corporation and Sealaska Corporation land selections within the project area. Several small parcels of private property are also located in Saltery and Sunny Coves. The Cholmondeley Project does not propose any management actions on the selected but not yet conveyed lands.

Energy Requirements and Conservation Potential

The implementation of the proposed alternatives would require the expenditure of energy (consumption of fuel). The amount of energy used varies by alternative. Factors influencing the amount of fuel used include the timber volume harvested, the type of harvest system, the amount of road construction, and sale preparation and administration. The overall logging costs are part of the Economic Efficiency Assessment earlier in this chapter.

Fuel consumption requirements were estimated as follows:

Timber Sale Preparation and Administration	1.56 gal/MBF
Cable logging	2 gal/MBF
Helicopter logging	8 gal/MBF
Load, Haul, Dump, and Tow	8 gal/MBF
Road Construction	4,000 gal/mile
Road Maintenance	20 gal/mile

Table 3-47: Estimated Fuel Consumption (Thousands of Gallons)

ACTIVITY	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7
Prep & admin.	0	54.9	52.6	38.0	58.8	55.2	21.8
Cable yarding	0	0	6.1	37.0	50.2	45.4	14.2
Helicopter yarding	0	281.3	245.5	46.8	100.8	101.6	56.0
Load, haul, dump, tow	0	281.3	269.8	194.8	301.6	283.2	112.0
Road construction	0	0	19.8	67.2	102.8	73.6	44.8
Road maintenance	0	0	0.1	0.1	0.5	0.4	0.2
Total gallons	0	617.5	593.9	383.8	614.7	559.4	249.0
Average gal/MBF	0	17.6	17.6	15.8	16.3	15.8	17.8

The Forest Service researches new or modified techniques to conserve fuel and reduce logging costs. Cable yarding uses about 75 percent as much fuel as shovel yarding and about 25 percent as much fuel as helicopter yarding. However, helicopter yarding reduces the need for roads and thereby saves fuel used in construction, vehicle use, and long-term maintenance.

Studies, both nation-wide and locally, have shown that vehicles equipped with central tire inflation devices (low-tire-pressure equipment) decrease costs of road construction, maintenance, and timber operations. Studies on Mitkof Island indicate that 10 to 14 percent less rock was needed for road construction, which saved approximately $450,000 (USDA 1999a). Costs of rock replacement, road maintenance, log truck fuel, and tire repair and replacement decrease using this system. The Forest Service provides a contract clause that reduces deposits for rock replacement when low-tire-pressure equipment is used because the cost reduction is so substantial.

Cable yarding equipment, fitted with mechanical or hydraulic interlocks, reduces yarding costs. With this type of equipment, the throttle and brake do not need to be applied simultaneously to get lift on the logs.

Social and Economic Effects

The Forest Service does not anticipate measurable social or economic effects due to this project, beyond those disclosed in Chapter 3 under the significant issues as they relate to social economics and subsistence. Based on earlier discussion of the social and economic effects of the proposed action and alternatives that disclosed there are no disproportionate effects to consumers, civil rights, minority groups, or women. See Socio-Economic Report of the Draft EIS and planning record. The broad-based assessment of these effects was done as part of the Forest Plan analysis (Forest Plan FEIS, Chapter 3 and Appendix H). We have no indication, nor have we received any comments that lead us to believe any of the alternatives would affect any individual's civil rights (religion, race, color, national origin, age, gender, disability, marital status, sexual orientation, or political beliefs).

Available Information

Much of the Tongass National Forest resource data resides in an electronic database formatted for a geographic information system (GIS). The Forest uses GIS software to assist in the analyses of these data. GIS data is available in tabular (numerical) format, and as plots displaying data in map format. For this EIS, all the maps, and most of the numerical analyses, are based on GIS resource data.

Knowledge about many of the relationships and conditions of wildlife, fish, forests, jobs and communities is less than complete. The ecology, inventory and management of a large forest area are a complex and developing science. The biology of wildlife species prompts questions about population dynamics and habitat relationships. The interaction of resource supply, the economy, and communities is the subject matter of an inexact science. However, the basic data and central relationships are sufficiently well established in the respective sciences that the effects of the alternatives can be adequately assessed and disclosed. The deciding official can make a reasoned choice between the alternatives. New information would not likely reverse or nullify these relationships.

Plans of Other Agencies

The CEQ regulations implementing NEPA require a determination of possible conflicts between the proposed action and the objectives of federal, state, and local land use plans, policies, and controls for the area. The major land use regulations of concern are Section 810 of the Alaska National Interest Lands Conservation Act (ANILCA), the Coastal Zone Management Act (CZMA), and the State of Alaska's Forest Practices Act. See the "Findings and Disclosures" section of Chapter 2 for discussion of compliance with these laws. State compliance is also discussed at the end of Chapter 1. ANILCA Section 810 requirements pertain to subsistence; these are also discussed in the Subsistence section of this chapter.

In 1990, the State of Alaska revised the Alaska Forest Practices Act. This Act provides standards to determine consistency of federal timber sales with the Alaska Coastal Management Act. It also has specific stream buffer requirements.

The Forest Service has evaluated the alternatives to ensure that the activities and developments affecting the coastal zone are consistent with approved coastal management programs. The Forest Plan standards and guidelines, and Best Management Practices incorporated into the Cholmondeley Project meet or exceed those indicated by the Alaska Coastal Management Act and the Alaska Forest Practices Act. Layout of all proposed harvest units complies with Forest Plan standards and guidelines for riparian areas, which meet or exceed the stream buffer requirements in the Forest Practices Act. In addition, the State of Alaska Office of Governmental Coordination would conduct a preliminary consistency review of this Final EIS.

Chapter 4

Lists

Chapter 4

Lists

List of Preparers

The following is a list of contributors to this EIS. Other Forest Service employees contributed to the completion of this document through their assistance in support functions. Their help is greatly appreciated.

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Glossary

Advanced Regeneration
Natural conifer reproduction established beneath an existing forest canopy.

Access
The opportunity to approach, enter, and make use of public lands.

Access Management
Acquiring rights and developing and maintaining facilities needed by people to get to and move through public lands

Adfluvial Fish
Species or populations of fish that do not go to sea, but live in lakes, and enter streams to spawn.

Aerial Harvest Systems
Harvesting methods in which the cut logs are moved from the stump to the loading area or log deck without touching the ground, for example helicopter logging.

Alaska National Interest Lands Conservation Act (ANILCA)
Passed by Congress in 1980, this legislation designated 14 National Forest wilderness areas in Southeast Alaska. The Alaska National Interest Lands Conservation Act of December 2, 1980. Public Law 96-487, 96th Congress, 94 Stat. 2371-2551. In Section 810 requires evaluations of subsistence impacts before changing the use of these lands.

Alaska Native Claims Settlement Act (ANCSA)
Public Law 92-203, 92nd Congress, 85 Stat. 2371-2551. Approved December 18, 1971, ANCSA provides for the settlement of certain land claims of Alaska natives and for other purposes.

Allowable Sale Quantity (ASQ)
The maximum quantity of timber that may be sold in each decade from suitable scheduled lands covered by the Forest Plan.

Alluvial Fan
A cone-shaped deposit of organic and mineral material made by a stream where it runs out onto a level plain or meets a slower stream.

Alluvium
Material deposited by rivers or streams, including the sediment laid down in river beds, flood plains and at the foot of mountain slopes and estuaries.

Alpine
The biogeographic zone made up of the elevated slopes above timberline and characterized by the presence of rosette-forming herbaceous plants and low shrubby slow-growing woody plants.

Anadromous Fish
Fish which mature and spend much of their adult life in the ocean, returning to inland waters to spawn. Salmon and Steelhead are examples.

Aquatic Habitat Management Unit (AHMU)
A mapping unit that displays an identified value for aquatic resources. It is a mechanism for carrying out aquatic resource management policy. See *Stream Class*.

Background
The distant part of a landscape. The seen or viewed area located from four miles to infinity from the viewer. Individual tree crowns generally are not visible. In other words vegetative textures on hillsides are not discernable, only tones of color. (See "Foreground" and "Middleground".)

Basal Area (BA)
The area of the cross section of a tree stem, or group of trees, measured at 4.5 feet above ground; usually presented as total square feet per acre.

Beach Fringe Habitat
Habitat that occurs from the intertidal zone inland 1000 feet and islands of less than 50 acres.

Best Management Practice (BMP)
Practices used for the protection of water quality. BMPs are designed to prevent or reduce the amount of pollution from nonpoint sources or other adverse water quality impacts while meeting other goals and objectives. BMPs are standards to be achieved, not detailed or site specific prescriptions or solutions. BMPs as defined in the USDA Forest Service Soil &Water Conservation Handbook are mandated for use in Region 10 under the Tongass Timber Reform Act.

Biological Diversity (Biodiversity)
The variety of life in all its forms and at all levels. This includes the various kinds and combinations of: genes; species of plants, animals, and microorganisms; populations; communities; and ecosystems. It also includes the physical and ecological processes that allow all levels to interact and survive. The most familiar level of biological diversity is the species level, which is the number and abundance of plants, animals, and microorganisms.

Biological Potential
The maximum possible output of a given resource limited only by its inherent physical and biological characteristics.

Biomass
The total quantity, at a given time, of living organisms of one or more species per unit area or all of the species in a community.

Biotic
Refers to life, living.

Blind Lead
An area within a harvest unit that is difficult to yard (remove felled timber) with conventional cable logging systems on convex slopes.

Blowdown
See windthrow.

Board Foot (BF)
A unit of wood 12" x 12" x 1". One acre of commercial timber in Southeast Alaska on the average yields 28,000-34,000 board feet per acre (ranging from 8,000-90,000 board feet per acre). One million board feet (MMBF) would be the volume of wood covering one acre two feet thick. One million board feet yields approximately enough timber to build 120 houses or 75,555 pounds of dissolving pulp.

Buffer
Buffer--an area of trees left on the edge of or within a harvest unit to protect specific resources. The following are types of buffers used in the Cholmondeley area:

Beach buffer--a 1,000 foot slope distance buffer left along the edge of the saltwater shoreline to maintain high quality wildlife habitat.

Reasonable assurance of windfirmness (RAW) buffer--additional trees left along the edge of a buffer to block or deflect strong winds, thereby protecting trees within the buffer from windthrow. The RAW buffer can have a partial or no-cut prescription and is not considered a part of the RMA.

RMA buffer--a buffer left along both sides of a stream or lake (riparian management area) based on stream channel type and adjoining wetlands or riparian soils; also referred to as stream buffer.

Slopebreak buffer--a buffer of trees left within the slopebreak of an incised stream channel. The slopebreak is defined as the second significant break in slope above the bottom of the stream channel.

TTRA buffer--a no-cut buffer of no less than 100 feet required by the Tongass Timber Reform Act to be left on each side of all Class I streams and Class II streams which flow directly into Class I streams.

Capability
An evaluation of a resource's inherent potential for use.

Channel Type
A way of distinguishing parts of a stream system into segments that have fairly consistent physical and biological characteristics. For descriptions, see "Channel Type Field Guide", Forest Service Publication R10-MB-6.

Clearcut
The harvesting in one cut of all trees on an area. The area harvested may be a patch, strip, or stand large enough to be mapped or recorded as a separate class in planning for sustained yield.

Climax Plant Community
The final or stable biotic community in a successional series which is self-perpetuating and in dynamic equilibrium with the physical habitat; the assumed end point in succession.

Code of Federal Regulations (CFR)
A codification of the general and permanent rules published in the Federal Register by the executive departments and agencies of the Federal Government.

Commercial Forest Land (CFL)
Land that is capable of producing continuous crops of timber (20 cubic feet of tree growth annually, or at least 8 MBF/acre, has not been withdrawn, can be logged without irreversible resource damage, and has reasonable assurance of restockability within 5 years.

Commercial Thinning
Thinning a stand where the trees to be removed are large enough to sell.

Connectivity
A measure of the extent that forest areas between or outside reserves provide habitat for breeding, feeding, dispersal, and movement.

Corridor
Connective links of certain types of vegetation between patches of suitable habitat which are necessary for certain species to facilitate movement of individuals between patches of suitable habitat. Also refers to transportation or utility rights-of-way.

Cover
Refers to trees, shrubs, or other landscape features that allow an animal to partly or fully conceal itself.

Critical Habitat
Specific terrain within the geographical area occupied by threatened or endangered species. Physical and biological features that are essential to conservation of the species and which may require special management considerations or protection are found in these areas.

Crown
The tree canopy. The upper part of a tree or woody plant that carries the main branch system and foliage.

Cruise
Refers to the general activity of determining timber volumes and quality as opposed to a specific method.

Cubic foot (cf)
Equivalent to a cube of wood with 1-foot sides. The cubic foot volume is a measure of the total sound wood in a tree and is a more accurate depiction of wood volume than the board foot measure. Forest Service policy is that cubic foot measure will be the basis for timber sales. Using broad regional conversion factors: 5BF ~ 1CF; 100 cubic feet = 1 cunit. 1MBF~ 2CCF, i.e. 43 million board feet ~ 86,000 cunits.

Cultural Resources
Historic or prehistoric objects, sites, buildings, structures, and their remains resulting from past human activities.

Cumulative Effects
The impacts on the environment resulting from additional incremental impacts of past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-federal) or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions occurring over time.

Cutover
Areas harvested recently.

dbh (DBH)
Diameter Breast Height. The diameter of a tree measured 4 feet 6 inches from the ground.

Debris Avalanche
The sudden movement downslope of the soil mantle; it occurs on steep slopes and is caused by the complete saturation of the soil from prolonged heavy rains. Also known as a debris slide.

Debris Flow
A general term for all types of rapid movement of debris downslope.

Debris Torrents
Landslides that occur as a result of debris; avalanche materials which either dam a channel temporarily or accumulate behind temporary obstructions such as logs and forest debris.

Deer Winter Range
Locations that provide food and shelter for Sitka black-tail deer under moderately severe to severe winter conditions.

Demographic
Pertaining to the study of the characteristics of human populations, such as size, growth, density, distribution, and vital statistics.

Desired Future Condition or Goal
A concise statement that describes a desired future condition normally expressed in broad, general terms that are timeless, in that there is no specific date by which the goal is to be achieved (36 CFR 219.3).

Detritis
Material, produced by the disintegration and weathering of rocks, that has been moved from its site of origin.

Developed Recreation
Recreation that requires facilities that, in turn, result in concentrated use of an area. Facilities in these areas might include roads, parking lots, picnic tables, toilets, drinking water, and buildings.

Direct Employment
The jobs that are immediately associated with the Long-Term Contract Timber Sale, including, for example, logging, sawmills, and pulp mills.

Dispersion
To disperse the effects of timber harvest by distributing harvest units more or less uniformly throughout a drainage so that increased runoff and sediment from disturbed sites will be buffered by lower levels of runoff and sediment production from surrounding undisturbed lands.

Dissected Landforms
A physical, recognizable form or feature of the earth's surface such as a mountain, hill, or valley having a characteristic shape, that in part is the result of several shallow or deeply incised drainage channels.

Distance Zone
Areas of landscapes denoted by specified distances from the observer (foreground, middleground, or background). Used as a frame of reference in which to discuss landscape characteristics of management activities.

Diversity
The distribution and abundance of different plant and animal communities and species within the area controlled by the Forest Plan.

Draft Environmental Impact Statement (DEIS)
A statement of environmental effects for a major Federal action which is released to the public and other agencies for comment and review prior to a final management decision. Required by Section 102 of the National Environmental Policy Act (NEPA).

Duff Layer
Vegetative material covering the mineral soils in forests including the fresh litter and well-decomposed organic material and humus.

Eagle Nest Tree Buffer Zone
A 330-foot radius around eagle nest trees established in an Agreement between the U.S. Fish and Wildlife Service and the Forest Service.

Ecosystem
All of the organisms in a given area interacting with the physical environment so that the flow of energy leads to an exchange of materials between living and nonliving parts within the system.

Ecotone
A transition or junction zone between two or more naturally occurring diverse plant communities (ecosystems).

Ecotype
A species of plant or animal that displays different genetic or physiological adaptations. For example, the brown bear in Southeast Alaska is the same species as the grizzly bear in interior Alaska, but the brown bear is generally larger than the grizzly.

Effects
Effects, impacts, and consequences as used in this environmental impact statement are synonymous. Effects may be ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historical, cultural, economic, or social, and may be direct, indirect, or cumulative

Direct Effects: Results of an action occurring when and where the action takes place.

Indirect Effects: Results of an action occurring at a location other than where the action takes place and/or later in time, but in the reasonably foreseeable future.

Cumulative Effects: See Cumulative Effects.

Encumbrance
A claim, lien, charge, or liability attached to and binding real property.

Endangered Species
Any species of animal or plant that is in danger of extinction throughout all or a significant portion of its range. Plant or animal species identified by the Secretary of the Interior as endangered in accordance with the 1973 Endangered Species Act. See also, threatened species, sensitive species.

Environmental Assessment (EA)
A comprehensive evaluation of alternative actions and their predictable short-term and long-term environmental effects, which include physical, biological, economic, social, and environmental design factors and their interactions. An EA is less comprehensive than an Environmental Impact Statement (EIS), and may result in a Finding of No Significant Impact; should the EA reveal significant impacts, a full EIS must then be conducted.

Ephemeral Stream
A stream that flows in direct response to rainfall and snowmelt but not during dry seasons. Its channel is above the level of the water table.

Erosion
The wearing away of the land surface by running water, wind, ice, gravity, or other geological activities.

Escapement
Adult anadromous fish that escape from all causes of mortality (natural or human-caused) to return to streams to spawn.

Estuarine Fringe Use Area
A 1,000-foot timbered zone around an estuary.

Estuary
For the purpose of this EIS process, estuary refers to the relatively flat, intertidal, and upland areas generally found at the heads of bays and mouths of streams. They are predominately mud and grass flats and are unforested except for scattered spruce or cottonwood.

Even-Aged System
A planned sequence of treatments designed to maintain and regenerate a stand with one age class. The range of tree ages is usually less than 20 percent of the rotation age. Clearcut, shelterwood, or seedtree methods produce even-aged stands.

Executive Order
An order or regulation issued by the President or some administrative authority under his or her direction.

Falldown
The difference between planned or scheduled harvest and that which is attained after implementation.

Final Environmental Impact Statement (FEIS)
The final version of the statement of environmental effects required for major federal actions under Section 102 of the National Environmental Policy Act. It is a revision of the draft environmental impact statement (DEIS) to include public and agency responses to the draft. The decision maker chooses which alternative to select from the Final EIS, and subsequently issues a Record of Decision (ROD).

Fiscal Year (FY)
October 1 through September 30, e.g. October 1, 1992 - September 30, 1993 = FY93.

Floodplain
That portion of a river valley, adjacent to the river channel, which is covered with water when the river overflows its banks at flood stages.

Foreground
The portion of a seen area (viewshed) approximately within ½ mile from a recreation facility, trail, highway, boat route or other use area or travel route. It is generally the area within which the branches of trees can be distinguished. See also, *Background* and *Middleground*.

Forest and Rangeland Renewable Resources Planning Act of 1976 (RPA)
Amended in 1976 by the National Forest Management Act. See RPA Assessment and Program.

Forest or Forest Land
Land currently supporting or capable of supporting forests of at least 10 percent crown closure or more. Including old growth and second-growth, and both commercial and noncommercial forest land.

Forested Wetland
A wetland whose vegetation is characterized by an overstory of trees that are 20 feet or taller.

FORPLAN
The forest planning model. A linear programming software package used to analyze planning decisions regarding land use patterns, capital investment, and timber harvest scheduling.

FSH
Forest Service Handbook.

FSM
Forest Service Manual.

Geographic Information System (GIS)
An information processing technology to input, store, manipulate, analyze, and display spatial and attribute data to support the decision-making process. It is a system of computer maps with corresponding site-specific information that can be electronically combined to provide reports and maps.

Geomorphology
The study of the forms of the land surface and the processes producing them. Also the study of the underlying rocks or parent materials and the landforms present which were formed in geological time.

Groundwater
Water within the earth that supplies wells and springs.

Guideline
A preferred or advisable course of action or level of attainment designed to promote achievement of goals and objectives.

Habitat
The sum total of environmental conditions of a specific place occupied by an organism, population, or community of plants and animals.

Habitat Capability
The estimated maximum number of fish or wildlife that can be supported by the amount and distribution of suitable habitat in an area.

Hard Snags/Soft Snags
Hard snags are dead trees that have little decay and are generally still hard wood. Soft snags are dead trees that have a considerable amount of decay and are generally soft, broken wood.

Haul out
An area of large, smooth rocks used by seals and sea lions for resting and pupping.

Humus
Substance of organic origin that is fairly but not entirely resistant to further bacterial decay.

Hydrophyte
Plants typically found in wet habitats.

IMPLAN
A computer-based system used by the Forest Service for constructing nonsurvey input/output models to measure economic input. The system includes a database for all counties in the United States and a set of computer programs to retrieve data and perform the computational tasks for input/output analysis.

Indirect Employment
The jobs in service industries that are associated with the Long-Term Contract timber sale including, for example, suppliers of logging and milling equipment.

Inoperable Timber
Timber that cannot be harvested by any proven method because of potential resource damage, extremely adverse economic considerations, or physical limitations.

Interdisciplinary Team (IDT)
A group of people with different backgrounds assembled to research, analyze, and write a project Environmental Impact Statement. The team is assembled out of recognition that no one scientific discipline is sufficiently broad enough to adequately analyze a proposed action and its alternatives.

Invertebrates
Animals without a backbone.

Irretrievable Commitments
Losses of production or use of renewable natural resources for a period of time. For example, timber production from an area is irretrievably lost during the time an area is allocated to a no-harvest prescription; if the allocation is changed to allow timber harvest, timber production can be resumed. The production lost is irretrievable, but is not irreversible.

Irreversible Commitments
Decisions causing changes that cannot be reversed. For example, if a roadless area is allocated to allow timber harvest and timber is actually harvested, that area cannot, at a later date, be allocated to wilderness. Once harvested, the ability of that area to meet wilderness criteria has been irreversibly lost. Often applies to nonrenewable resources such as minerals and cultural resources.

Issue
A point, matter, or section of public discussion or interest to be addressed or decided.

Knutsen-Vandenburg Fund (KV)
The portion of timber sale receipts collected and used for reforestation and other renewable resource projects on the sale area.

Land Allocation
The decision to use land for various resource management objectives to best satisfy the issues, concerns and opportunities and meet assigned forest output targets.

Land Exchange
The conveyance of non-Federal land or interests to the United States in exchange for National Forest System land or interests in land.

Land Use Designation (LUD)
The method of classifying land uses presented in the Tongass Land Management Plan (TLMP). These 19 designations represent a wide range of allocations from wilderness to full commodity development.

Land Use Prescriptions
Specific management direction applied to a defined area of land to attain multiple use and other goals and objectives.

Landslides
The moderately rapid to rapid down slope movement of soil and rock materials that may or may not be water-saturated.

Large Woody Debris (LWD)
Any large piece of relatively stable woody material having a diameter of at least four inches and a length greater than three feet that intrudes into the stream channel. Also called Large Organic Debris (LOD).

Log Transfer Facility (LTF)
A facility that is used for transferring commercially harvested logs to and from a vessel or log raft, or the formation of a log raft. It is wholly or partially constructed in waters of the United States and location and construction are regulated by the 1987 Amendments to the Clean Water Act. Formerly termed "terminal transfer facility" or "log dump."

Logging Systems
Highlead: A cable yarding system, using a two-drum yarder, in which lead blocks are hung on a spar or tower to provide lift to the front end of the logs. Grabinski is a modified highlead cable system.

Aerial Logging Systems: Systems where the cut logs are moved from the stump to the loading area or log deck without touching the ground.

Live skyline/gravity carriage return: A two-drum, live skyline yarding system in which the carriage moves down the skyline by gravity; thus, is restricted to uphill yarding; the skyline is lowered to attach logs then raised and pulled to the landing by the mainline.

Live skyline/haulback required: A live skyline yarding system composed of skyline, mainline, and haulback; the carriage is pulled to the woods by the haulback; the skyline is lowered to permit the chokers to be attached to the carriage, and the turn is brought to the landing by the mainline.

Running skyline: A yarding system with three suspended moving lines, generally referred to as the main, haulback, and slack-pulling, that when properly tensioned will provide lift, travel, and control to the carriage; normally indicates a gantry type tower and a three-drum yarder.

Standing skyline: Used wherever yarding distances or span distances exceed the capability of live skyline equipment.

Multispan skyline: European equipment is commonly associated with this.

Tractor: Used to describe the full range of surface skidding equipment, designed to operate on level to downhill settings.

Shovel: A system of short-distance logging in which logs are moved from the stump to the landing by repeated swinging with a swing-boom log loader; the loader is walked off the haul road and out into the harvest unit; logs are moved and decked progressively closer to the haul road with each pass of the loader; when logs are finally decked at roadside, the same loader, or a different loader, loads out trucks. On gentle ground, logs are either heeled and swung or dragged by the boom as it rotates; larger log length and tree length logs are usually dragged to maintain machine stability. Soils should be moderate to well drained and side slopes must be less than 20 percent; passes or stripes should be kept to a maximum of four.

Helicopter: Flight path cannot exceed 40 percent downhill or 30 percent uphill; landings must be selected so there is adequate room for the operation and so that the helicopter can make an upwind approach to the drop zone.

A-Frame: Beach fringe timber which is logged with a float mounted yarder typically rigged in a highlead configuration for direct A-frame yarding.

Cold-deck and swing: Planned to access areas not suitable for skyline operations.

Logging System Transportation Analysis Plan (LSTA)
Interdisciplinary design and mapping of all potential timber harvest units, including associated logging and transportation systems, within a project area.

MBF
Thousand board feet.

MMBF
A million board feet net sawlog and utility volume.

MMCF
A million cubic feet net sawlog and utility volume.

Managed stand
A stand of trees in which stocking level control is applied to achieve maximum growth.

Management Indicator Species (MIS)
Species selected in a planning process that are used to monitor the effects of planned management activities on viable populations of wildlife and fish, including those that are socially or economically important.

Management Prescriptions
Method of classifying land uses presented in the Tongass Land Management Plan (TLRMP 1997, modified 1999). Replaces the Land Use Designations (LUDs) originally presented in TLMP.

Management Requirement
Standards for resource protection, vegetation manipulation, silvicultural practices, even-aged management, riparian areas, soil and water and diversity, to be met in accomplishing National Forest System goals and objectives. (see 36 CFR 219.17)

Marine Benthic Habitat
The area occupied by the aggregate of organisms living at or on the bottom of a water body.

Maritime Climate
Weather conditions controlled by an oceanic environment characterized by small annual temperature ranges and high precipitation.

Mass Failure
The downslope movement of a block or mass of soil. This usually occurs under conditions of high-soil moisture and does not include individual soil particles displaced as surface erosion.

McGilvery (Soil series)
Soil series which represents the only well-drained organic soil found in the Ketchikan Area. It is composed of a thin surface layer (less than 20 inches deep) of organic material overlying bedrock. These soils are associated with cliffs and rock outcrops, and are sensitive to disturbance.

Mean Annual Increment (MAI)
The total volume of a stand divided by its age.

Memorandum of Understanding (MOU)
A legal agreement between the Forest Service and others agencies resulting from consultation between agencies that states specific measures the agencies will follow to accomplish a large or complex project. A memorandum of understanding is not a fund obligating document.

Microclimate
The temperature, moisture, wind, pressure, and evaporation (climate) of a very small area that differs from the general climate of the larger surrounding area.

Middleground
The visible terrain beyond the foreground where individual trees are still visible but do not stand out distinctly for the landscape; area located from 1/4 to 5 miles from the viewer. See also, Foreground and Background.

Mid-market analysis
The value and product mix represented at the quarter in which the pond log value (end-product selling price less manufacturing cost) for the species and product mix most closely matches the point between the ranked quarters of the Alaska Index Operation pond value, adjusted to Common Year Dollars, where one half of the harvest of timber from the Tongass National Forest has been removed at higher values and one half of the timber has been removed at lower values, during the period from 1979 to the current quarter (FSH 2409.22 R10 Chapter 531.1-2).

Mineral Soils
Soil consisting predominately of, and having its properties determined by, mineral material.

Minimum Viable Population
A population with the estimated numbers and distribution of reproductive individuals to maintain the population over time.

Mining Claims
A geographic area of the public lands held under the general mining laws in which the right of exclusive possession is vested in the locator of a valuable mineral deposit.

Mitigation Measures
Measures designed to counteract environmental impacts or to make impacts less severe. These may include: avoiding an impact by not taking a certain action or part of an action; minimizing an impact by limiting the degree or magnitude of an action and its implementation; rectifying the impact by repairing, rehabilitating, or restoring the affected environment; reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; or compensating for the impact by replacing or providing substitute resources or environments.

Model
A representation of reality used to describe, analyze, or understand a particular concept. A model may be a relatively simple qualitative description of a system or organization, or a highly abstract set of mathematical equations. A model has limits to its effectiveness, and is used as one of several tools to analyze a problem.

Modular Bridge
A portable bridge constructed of components that can be readily assembled and disassembled for movement from one site to another.

Monitoring
A process of collecting information to evaluate whether or not objectives of a project and its mitigation plan are being realized. Monitoring can occur at different levels: to confirm whether mitigation measures were carried out in the manner called for, to determine whether the mitigation measures were effective, or to validate whether overall goals and objectives were appropriate. Different levels call for different methods of monitoring.

Multiple-aged Stands
An intermediate form of stand structure between even and uneven-aged stands. These stands generally have two or three distinct tree canopy levels occurring within a single stand.

Multiple Use
The management of all the various renewable resources of the National Forest System to be used in the combination that will best met the needs of the American people.

Muskeg
In Southeast Alaska a type of bog that has developed over thousands of years in depressions or flat areas on gentle to steep slopes. Also called peatlands.

Mycorrhizae
A mutualism between plant roots and certain kinds of fungi. The plants exude carbon compounds to the fungi and the fungi provide the plants with soil nutrients, such as phosphorus.

National Environmental Policy Act (NEPA) of 1969
An Act to declare a national policy which will encourage productive and enjoyable harmony between humankind and the environment, to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of humanity, to enrich the understanding of the ecological systems and natural resources important to the Nation, and to establish a Council on Environmental Quality (The Principal Laws Relating to Forest Service Activities, Agric. Handb. 453. USDA Forest Service, 359 p.).

National Forest Management Act (NFMA)
A law passed in 1976 as an amendment to the Forest and Rangeland Renewable Resources Planning Act requiring the preparation of Regional Guides and Forest Plans and the preparation of regulations to guide that development.

National Wild and Scenic River System
Rivers with outstanding scenic, recreational, geological, fish and wildlife, historic, cultural, or other similar values designated by Congress under the Wild and Scenic Rivers Act of 1968 and amended in 1986, for preservation of their free-flowing condition. May be classified and administered under one or more of the following categories: Wild, Scenic, and/or Recreational.

Native Selection
Application by Native corporations and individuals to a portion of the USDI Bureau of Land Management for conveyance of lands withdrawn in fulfillment of Native entitlements established under ANSCA.

Net Sawlog Volume
Tree or log volume suitable in size and quality to be processed into lumber. In Southeast Alaska, depending on the market, the volume may be processed as pulp or lumber.

Non-interchangable Components (NICs)
Increments of the suitable land base and their contribution to the allowable sale quantity (ASQ) that are established to meet Forest Plan objectives. NICs are identified as parcels of land and the type of timber thereon which are differentiated for the purpose of Forest Plan implementation. The total ASQ is derived from the sum of the timber volumes from all NICs. The NICs cannot be subsistuted for each other in the timber sale program.

No-action Alternative
The most likely condition expected to exist in the future if current management direction were to continue unchanged.

Non-commercial Forest Land
Land with more than 10 percent cover of commercial tree species but not qualifying as Commercial Forest land.

Noncommercial species
Species that have no economic values at this time nor anticipated timber value within the near future.

Non-Forest Land
Land that has never supported forests and lands formerly forested but now developed for such nonforest uses as crops, improved pasture, etc.

Notice of Intent (NOI)
A notice printed in the Federal Register announcing that an Environmental Impact Statement will be prepared. The NOI must describe the proposed action and possible alternatives, describe the agency's proposed scoping process, and provide a contact person for further information.

Offering Area
A geographic area identified by the Forest Service within which the offering specifications are outlined to meet the requirements of a contract. One or more offering areas may be identified within all or a portion of a project area.

Old Growth
Ecosystems distinguished by old trees and related structural attributes. Old-growth forests are characterized by larger tree size, higher accumulations of large dead woody material, multiple canopy layers, different species composition, and different ecosystem function. The structure and function of an old-growth ecosystem will be influenced by its stand size and landscape position and context. For the displays in this project, it is those areas typed as Volume Class 4, 5, 6, and 7.

Organic Soils
Soils that contain a high percentage (generally greater than 20 to 30 percent) of organic matter throughout the soil depth.

Parent Material
The unconsolidated and partially weathered material (or the C Horizon) from which upper layers of soil developed.

Partial Cut
Method of harvesting trees where any number of live stems are left standing in any of various spatial patterns; not clearcutting.

Patch
A non-linear surface area differing in appearance from its surroundings.

Payments to States
A fund consisting of approximately 25 percent of the gross annual timber receipts received by the National Forests in that state. This is returned to the State for use on roads and schools.

Peak flow
The highest discharge of water recorded over a specified period of time at a given stream location. Often thought of in terms of spring snowmelt, summer, fall, or winter rainy season flows. Also called maximum flow.

Planning Record
A system that records decisions and activities that result from the process of developing a forest plan, revision, or significant amendment.

Plant Association
A basic unit of vegetation classification based on land management potential, species composition, successional patterns, and the climax plant community.

Plant Communities
Aggregations of living plants having mutual relationships among themselves and to their environment. More than one individual plant community.

Pole
An immature tree between 5 and 9 inches diameter breast height.

Population Viability
Ability of a population to sustain itself.

Precommercial Thinning
The practice of removing some trees of sapling size to reduce stocking and improve tree growing space; trees will grow faster due to reduced competition for nutrients, water, and sunlight.

Present Net Value (PNV)
The difference between the benefits and costs associated with the alternatives.

Pre-haul Maintenance
Work performed prior to use of a road for timber harvest activities; includes blading, shaping and brush removal.

Primary Succession
Vegetation development is initiated on newly formed soils or upon surfaces exposed for the first time (as by landslides) which have, as consequence, never borne vegetation before.

Process Group
A combination of similar channel types based on major differences in landform, gradient, and channel shapes. A full description of process groups is located in Appendix D of the Forest Plan.

Productive Old Growth
Old-growth forest capable of producing at least 20 cubic feet of wood fiber per acre per year, or having greater than 8,000 board feet per acre.

Public Participation
Meetings, conferences, seminars, workshops, tours, written comments, responses to survey questionnaires, and similar activities designed and held to obtain comments from the public about Forest Service activities.

Receipts
Those priced benefits for which money will actually be paid to the Forest Service: recreation fees, timber harvest, mineral leases, and special use fees.

Record of Decision
A document separate from but associated with an Environmental Impact Statement which states the decision, identifies all alternatives, specifying which were environmentally preferable, and states whether all practicable means to avoid environmental harm from the alternative have been adopted, and if not, why not.

Recreation Opportunity Spectrum (ROS)
A system for planning and managing recreation resources that categorizes recreation opportunities into seven classes. Each class is defined in terms of the degree to which it satisfies certain recreation experience needs based on the extent to which the natural environment has been modified, the type of facilities provided, the degree of outdoor skills needed to enjoy the area and the relative density of recreation use. The seven classes are:

Primitive: An unmodified environment generally greater than 5,000 acres in size and located generally at least 3 miles from all roads and other motorized travel routes. A very low interaction between users (generally less than three group encounters per day) results in a very high probability of experiencing solitude, freedom, closeness to nature, tranquility, self-reliance, challenge, and risk. Evidence of other users is low. Restrictions and controls are not evident after entering the land unit. Motorized use is rare.

Semi-Primitive Non-motorized: A natural or natural-appearing environment generally greater than 2,500 acres and generally located at least 1/2 mile (greater or less depending on terrain and vegetation, but no less than 1/4 mile), but not further than 3 miles from all roads and other motorized travel routes. Concentration of users is low (generally less than 10 group encounters per day), but there is often evidence of other users. There is a high probability of experiencing solitude, freedom, closeness of nature, tranquility, self-reliance, challenge, and risk. There is a minimum of subtle on-site controls. No roads are present in the area.

Semi-Primitive Motorized: A natural or natural-appearing environment generally greater than 2,500 acres in size and generally located within 1/2 mile of primitive roads and other motorized travel routes used by motor vehicles; but not closer than 1/2 mile (greater or less, depending on terrain and vegetation, but no less than 1/4 mile) from better-than-primitive roads and other motored travel routes. Concentration of users is low (generally less than 10 group encounters per day), but here is often evidence of other users. There is a moderate probability of experiencing solitude, closeness to nature, and tranquility along with a high degree of self-reliance, challenge, and risk in using motorized equipment. Local roads may be present, or along saltwater shorelines there may be extensive boat traffic.

Roaded Natural: Resource modification and utilization are evident, in a predominantly naturally appearing environment generally occurring within 1/2 mile (greater or less depending on terrain and vegetation, but no less than 1/4 mile) from better-than-primitive roads and other motorized travel routes. Interactions between users may be moderate to high (generally less than 20 group encounters per day), with evidence of other users prevalent. There is an opportunity to affiliate with other users in developed sites, but with some chance for privacy. Self-reliance on outdoor skills is only of moderate importance with little opportunity for challenge and risk. Motorized use is allowed.

Roaded Modified: Vegetative and landform alterations typically dominate the landscape. There is little on-site control of users except for fated roads. There is moderate evidence of other users on roads (generally less than 20 group encounters per day), and little evidence of others or interactions at campsites. There is opportunity to get away from others, but with easy access. Some self-reliance is required in building campsites and use of motorized equipment. A feeling of independence and freedom exists with little challenge and risk. Recreation users will likely encounter timber management activities.

Rural: The natural environment is substantially modified by land use activities. Opportunity to observe and affiliate with other users is important as is convenience of facilities. There is little opportunity for challenge and risk and self-reliance on outdoor skills is of little importance. Recreation facilities designed for group use are compatible. Users may have more than 20 group encounters per day.

Urban: Urbanized environment with dominant structures, traffic lights and paved streets. May have natural appearing backdrop. Recreation places may be city parks and large resorts. Opportunity to observe and affiliate with other users is very important as is convenience of facilities and recreation opportunities. Interaction between large numbers of users is high. Outdoor skills, risk, and challenge are unimportant except for competitive sports. Intensive on-site controls are numerous.

Regeneration
The process of establishing a new crop of trees on previously harvested land.

Regional Forester
The Forest Service official responsible for administering a single region.

Regional Guide
The guide developed to meet the requirements of the Forest and Rangeland Renewable Resources Planning Act of 1974 as amended. It guides all natural resource management activities and establishes management standards and guidelines for the National Forest System lands within a given region.

Rehabilitation
Actions taken to protect or enhance site productivity, water quality, or other values for a short period of time.

Reserved Lands
Lands that have been withdrawn from the timber base by an Act of Congress, the Secretary of Agriculture, or the Chief of the Forest Service.

Resident Fish
Fish that are not anadromous and that reside in freshwater during their entire lifecycle. Resident fish include non-anadromous Dolly Varden char and cutthroat trout.

Resource values
The tangible and intangible worth of forest resources.

Responsible Official
The Forest Service employee who has the delegated authority to make a specific decision.

Restricted Harvest
The action of apportioning the supply of a resource to specific uses or to particular persons or organizations.

Restoration
The long-term placement of land back into its natural condition or state of productivity.

Retained structure
Merchantable or submerchantable trees and snags that are left within the harvest unit to provide biological habitat components over the next management cycle.

Revegetation
The re-establishment and development of a plant cover. This may take place naturally through the reproductive processes of the existing flora or artificially through the direct action of reforestation or reseeding.

Riparian Area
The area including a stream channel, lake, or estuary bed, the water itself, and the plants that grow in the water and on the land next to the water.

Roads
Arterial: Roads usually developed and operated for long-term land and resource management purposes to constant service.

Collector: Collects traffic from Forest local roads; usually connects to a Forest arterial or public highway.

Local: Provides access for a specific resource use activity such as a timber sale or recreational site, although other minor uses may be served.

Preplanned: Roads planned in a prior EIS.

Temporary: (short-term roads) For National Forest timber sales, temporary roads are constructed to harvest timber on a one-time basis. These logging roads are not considered part of the permanent Forest transportation network and have stream crossing structures removed, erosion measures put into place, and the road closed to vehicular traffic after harvest is completed.

Roadless Area
A generic term that includes inventoried roadless area and unroaded areas.

Rotation
The planned number of years between the formation or the regeneration of a crop or stand of trees and its' final cutting at a specified stage of maturity. On the Tongass this is estimated at 100 or 200 years.

Rotation Age
The age of a stand when harvested at the end of a rotation.

RPA Assessment and Program
The RPA Assessment is prepared every ten years and describes the potential of the nation's forests and rangelands to provide a sustained flow of goods and services. The RPA Program is prepared every five years to chart the long-term course of Forest Service management of the National Forests, assistance to State and private landowners, and research. They are prepared in response to Sections 3 and 4 of the Forest and Rangeland Renewable Resources Planning Act of 1974 (RPA) (16 U.S.C. 1601).

Salvage Sale
A timber sale to use dead and down timber and scattered poor-risk trees that would not be marketable if left in the stand until the next scheduled harvest.

Sawlog
That portion of a tree that is suitable in size and quality for the production of dimension lumber collectively known as sawtimber.

Scheduled Timber Harvests
Timber harvests done as part of meeting the allowable sale quality.

Scoping Process
Early and open activities used to determine the scope and significance of a proposed action, what level of analysis is required, what data is needed, and what level of public participation is appropriate. Scoping focuses on the issues surrounding the proposed action, and the range of actions, alternatives, and impacts to considered in an EA or an EIS.

Scrub-Shrub Wetland
Wetlands dominated by woody vegetation less than 20 feet tall. The species include true shrubs, young trees, and trees or shrubs that are small or stunted because of environmental conditions. In Southeast Alaska this includes forested lands where trees are stunted because of poor soil drainage.

Second Growth
Forest growth that has become established following some disturbance such as cutting, serious fire, or insect attack; even-aged stands that will grow back on a site after removal of the previous timber stand.

Secondary Succession
The process of re-establishing vegetation after normal succession is disrupted by fire, cultivation, lumbering, windthrow, or any similar disturbance.

Sediment
Solid material, both mineral and organic, that is in suspension, is being transported, or has been moved from its site of origin by air, water, gravity, or ice and has come to rest on the earth's surface.

Seed Tree
Small number of seed-bearing trees left singly or in small groups after timber harvest to provide seed for regeneration of the site.

Selective Cutting
The annual or periodic removal of trees (particularly the mature), individually or in small groups from an uneven-aged forest to achieve the balance among diameter classes needed for sustained yields, and in order to realize the yield, and establish a new crop of irregular constitution. Note: The improvement of the Forest is a primary consideration.

Sensitive Species
Plant and animal species that are susceptible or vulnerable to activity impacts or habitat alterations. Those species that have appeared in the Federal Register as proposed for classification or are under consideration for official listing as endangered or threatened species, that are on a non-official State list, or that are recognized by the regional forester as needing special management to prevent placement on Federal or state lists.

Seral
Early stage of succession.

Shade Tolerance
Plant species physiological growth adaptation to shade conditions; shade tolerant species such as western hemlock are able to live in shaded conditions whereas shade intolerant species such as spruce are not adapted to shaded conditions.

Shelterwood Cutting
A harvest method in which most of the trees are removed in an initial entry and some trees are left to naturally reseed the area and provide protection to new seedlings that establish on the site. A second entry is conducted later to remove the remaining trees.

Silvicultural practices
Management techniques used to modify, manage, and replace a forest over time. Silvicultural practices are classified according to the method of carrying out the process (shelterwood, seed tree, clear-cut, commercial thinning, etc.).

Silviculture
The art, science, and practice of controlling the establishment, composition, structure, and growth of trees and other vegetation in forest stands.

Single-tree selection
A cutting method to develop and maintain uneven-aged stands by removal of selected trees from specified age classes over the entire stand area in order to meet a predetermined goal of age distribution and species in the remaining stand.

Site Index
A measure of a forest areas relative productive capacity for tree growth. Measurement of site index is based on height of dominant trees in a stand at a given age.

Site Productivity
Production capability of specific areas of land.

Slope Distance
Distance measured along the contour of the ground.

Snag
A standing dead tree, usually greater than 5 feet tall and 6 inches in diameter at breast height.

Soil Productivity
The capacity of a soil, in its normal environment, to produce a specific plant or sequence of plants under a specific system of management.

Soil Quality Standards
Standards that are a combination of 1) "threshold" values for severity of soil property alteration, or significant change in soil properties conditions, and 2) areal extent of disturbance.

Soil Resource Inventory (SRI)
An inventory of the soil resource based on landform, vegetative characteristics, soil characteristics, and management potentials.

Special Habitats
Structural elements of ecosystems. These may include, but are not limited to: snags, spawning gravels, fallen trees, aquatic reefs, caves, seeps, and springs.

Special Use Authorization
A permit, term permit, temporary permit, lease, or easement that allows occupancy or use of, or rights and privileges on National Forest System lands.

Special Use Permit
Permits and granting of easements (excluding road permits and highway easements) authorizing the occupancy and use of land.

Split Yarding
The process of separating the direction of timber harvest yarding into opposite directions.

Stand (Tree Stand)
An aggregation of trees occupying a specific area and sufficiently uniform in composition, age arrangement, and condition as to be distinguishable from the forest in adjoining areas.

Standard
A course of action or level of attainment required by the forest plan to promote achievement of goals and objectives.

State Historic Preservation Officer (SHPO)
State appointed official who administers Federal and State programs for cultural resources.

State Selection
Application by Alaska Department of Natural Resources to the USDI Bureau of Land Management for conveyance of a portion of the 400,000-acre State entitlement from vacant and unappropriated National Forest System lands in Alaska, under the Alaska Statehood Act of 1959 (Public Law 85-508, 72 Stat. 340).

Stocking
The degree of occupancy of land by trees as measured by basal area or number of trees and as compared to a stocking standard; that is, the basal area or number of trees required to fully use the growth potential of the land.

Stream Class
A means to categorize stream channels based on their fish production values. Also known as Aquatic Habitat Management Unit (AHMU) Class. Four stream classes defined by the Forest Plan are as follows:

Class I: Streams and lakes with anadromous or adfluvial fish habitat; or high quality resident fish waters listed in Appendix 68.1, Region 10 Aquatic Habitat management Handbook (FSH 2609.24), June 1986; or habitat above fish migration barriers known to be reasonable enhancement opportunities for anadromous fish.

Class II: Streams and lakes with resident fish populations and generally steep (6-15 percent) gradient (can also include streams from 0-5 percent gradient) where no anadromous fish occur, and otherwise not meeting Class I criteria. These populations have limited fisheries values and generally occur upstream of migration barriers or have other habitat features that preclude anadromous fish use.

Class III: Perennial and intermittent streams with no fish populations but which have sufficient flow or transport sufficient sediment and debris to have an immediate influence or downstream water quality or fish habitat capability.

These streams generally have bankfull widths greater than 5 feet and are highly incised into the surrounding hillslope.

Class IV: Intermittent, ephemeral, and small perennial channels with insufficient flow or sediment transport capabilities to have an immediate influence on downstream water quality or fish habitat capability. These streams generally are shallowly incised into the surrounding hillslope.

Non-streams: Rills and other watercourses, generally intermittent and less than 1 foot in bankfull width, little or no incisement into the surrounding hillslope, and with little or no evidence of scour.

Structural Diversity
The diversity of forest structure, both vertically and horizontally, which provides for a variety of forest habitats such as logs and multi-layered forest canopy for plants and animals.

Stumpage
The value of timber as it stands uncut in terms of dollar value per thousand board feet.

Subsistence
Section 803 of the Alaska National Interest Lands Conservation Act defines subsistence use as, "the customary and traditional uses by rural Alaska residents of wild renewable resources for direct, personal or family consumption as food, shelter, fuel, clothing, tools, or transportation; for the making and selling of handicraft articles out of nonedible byproducts of fish and wildlife resources taken for personal or family consumption; for barter, or sharing for personal or family consumption; and for customary trade."

Subsistence Use Area
Important Subsistence Use Areas include the "most reliable" and "most often hunted" categories from the Tongass Resource Use Cooperative Survey (TRUCS) and from subsistence survey data from ADF&G, the University of Alaska, and the Forest Service, Region 10. Important use areas include both intensive and extensive use areas for subsistence harvest of deer, furbearers, and salmon.

Succession
A series of dynamic changes by which one group of organisms succeeds another through stages leading to a potential natural community or climax. The process of plant community development after disturbance involves changes in species composition over time.

Suitable Forestland
Commercial forestland identified as having the biological capability to sustain long-term timber production and administratively designated for such production.

Suspended Sediment
The very fine soil particles that remain in suspension in water for a considerable period of time without contact with the stream or river channel bottom.

Sustained Yield
The amount of renewable resources that can be produced continuously at a given intensity of management.

Tentatively Suitable Forest Land
Forest land that is producing or is capable of producing crops of industrial wood and: (a) has not been withdrawn by Congress, the Secretary of Agriculture of the Chief of the Forest Service; (b) existing technology and knowledge is available to ensure timber production without irreversible damage to soils productivity, or watershed conditions; (c) existing technology and knowledge, as reflected in current research and experience, provides reasonable assurance that it is possible to restock adequately within 5 years after final harvest; and (d) adequate information is available to project responses to timber management activities.

Terrestrial Ecosystems
Plant communities that are not dependent on a perpetual source of water to grow.

Thinning
The practice of removing some of the trees in a stand so that the remaining trees will grow faster due to reduced competition for nutrients, water, and sunlight. Thinning may also be done to change the characteristics of a stand or wildlife or other purposes. Thinning may be done at two different stages.

Threatened Species
Plant or animal species which is likely to become endangered throughout all or a significant portion of its range within the foreseeable future, as defined in the Endangered Species Act of 1973, and which has been designated in the Federal Register by the Secretary of the Interior as a threatened species. (See also, endangered species, sensitive species.)

Threshold
The point or level of activity beyond which an undesirable set of responses begins to take place within a given resource system.

Tiering
Eliminating repetitive discussions of the same issue by incorporating by reference. The general discussion in an environmental impact statement of broader scope; e.g., this document is tiered to the Tongass Land Management Plan, as amended.

Timber Appraisal
Establishing the fair market value of timber by taking the selling value minus manufacturing costs, the cost of getting logs from the stump to the manufacturer, and an allowance for profit and risk.

Timber Classification
Forested land is classified under each of the land management alternatives according to how it relates to be management of the timber resource. The following are definitions of timber classifications used for this purpose.

Nonforest: Land that has never supported forests and land formerly forested where use for timber production is precluded by development or other uses.

Forest: Land at least 10-percent stocked (based on crown cover) by forest trees of any size, or formerly having had such tree cover and not currently developed for nonforest use.

Suitable or suitable available: Land to be managed for timber production on a regulated basis.

Unsuitable: Forest land withdrawn from timber utilization by statute or administrative regulation (for example, wilderness), or identified as inappropriate for timber production in the Forest planning process.

Commercial forest: Forest land tentatively suitable for the production of continuous crops of timber and that has not been withdrawn.

Timber Dispersion
When an opening created from a final timber harvest is no longer considered an opening for the purpose of scheduling adjacent timber harvest. This is often expressed as the maximum amount of disturbance in a watershed at any given time.

Timber Harvest Unit
A portion of an Offering Area within which the Forest Service specifies for harvest all or part of the timber to meet the requirements of a timber sale contract.

Timber Stand Improvement (TSI)
All noncommercial intermediate cutting and other treatments to improve composition, condition, and volume growth of a timber stand.

Tongass Land Management Plan (TLMP)
The 10-year land allocation plan for the Tongass National Forest that directs and coordinates planning, the daily uses, and the activities carried out within the forest. Currently under revision. Also referred to in this EIS as the Forest Plan.

Tongass Resource Use Cooperative Survey (TRUCS)
A study on subsistence uses which was used for evaluating the effects of the proposed action in this EIS.

Traffic Service Levels
Traffic characteristics and operating conditions that are used in setting road maintenance levels.

Two-aged system
A planned sequence of treatments designed to maintain and regenerate a stand with two age classes.

Understory
The trees and shrubs in a forest growing under the canopy or overstory.

Uneven-Aged Management
Management techniques that result in the creation of stands that exhibit a range of diameter or age classes.

Unsuitable
Forest land withdrawn from timber utilization by statute or administrative regulation; for example, wilderness, or identified as not appropriate for timber production in the forest planning process.

Utility Logs
Those logs that do not meet sawlog grade but are suitable for production of firm useable pulp chips.

VAC
See Visual Absorption Capability.

Value Comparison Unit (VCU)
Areas which generally encompass a drainage basin containing one or more large stream systems; boundaries usually follow easily recognizable watershed divides. Established to provide a common set of areas where resource inventories could be conducted and resource interpretations made.

Viable Population
The number of individuals of a species required to ensure the long-term existence of the species in natural, self-sustaining populations adequately distributed throughout their region.

Viewshed
An expansive landscape or panoramic vista seen from a road, marine water way, or specific viewpoint.

Visual Quality Objectives (VQO)
Measurable standards reflecting five different levels of landscape alteration based upon on the degree to which the alteration repeats the form, line, color and texture and patterns of the natural landscape. The five categories of VQOs are:

Preservation: Permits ecological changes only. Applies to wilderness areas and other special classified areas. Management activities are generally not allowed in this setting.

Retention: Provides for management activities that are not visually evident to the casual Forest visitor.

Partial Retention: Management activities may be evident but remain visually subordinate to the natural landscape.

Modification: Management activities may visually dominate the characteristics landscape. However, activities must borrow from naturally established form-line color and texture so that the visual characteristics resemble natural occurrences within the surrounding area when viewed in the middleground distance.

Maximum Modification: Management activities may dominate the landscape but should appear as a natural occurrence when viewed as background.

V-Notches
A deeply incised valley along some waterways that would look like a "V" from a cross-section. These abrupt changes in terrain features are often used as harvest unit or yarding boundaries.

Volume
Stand volume based on standing net board feet per acre by Scribner Rule.

Volume Class
Classification system used to differentiate timber stands into similar average volume per acre categories or strata.

Volume strata
Divisions of old-growth timber volume derived from the interpreted timber type data layer (TIMTYP) and the common land unit data layer (CLU). Three strata (low, medium, and high) are recognized in the Forest Plan.

Watershed
A geographic area of land, water and biota within the confines of a drainage divide. The total area above a given point of a water body that contributes flow to that point.

Wetland
Areas that are inundated by surface or groundwater frequently enough to support vegetation that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include: swamps, marshes, bogs, and similar areas such as sloughs, potholes, wet meadows, river overflows, mudflats, and natural ponds. See the TLMP (1997) pgs. 3-318 and 3-321 for detailed discussion on wetland type definitions.

Wilderness
Areas designated by congressional action under the 1964 Wilderness Act. Wilderness is defined as undeveloped federal land retaining its primeval character and influence without permanent improvements or human habitation. Wilderness areas are protected and managed to preserve their natural conditions, which generally appear to have been affected primarily by the forces of nature, with the imprint of human activity substantially unnoticeable; have outstanding opportunities for solitude or a primitive and unconfined type of recreation; areas of at least 5,000 acres are of sufficient size to make practical their preservation, enjoyment, and use in an unimpaired condition; and may contain features of scientific, educational, scenic, or historical value as well as ecologic and geologic interest. In Alaska, Wilderness has been designated by ANILCA and TTRA.

Wildlife Analysis Area (WAA)
A division of land used by the Alaska Department of Fish and Game for wildlife analysis.

Wildlife Habitat
The locality where a species may be found and where the essentials for its development and sustained existence are obtained.

Wildlife Habitat Management Unit (WHMU)
An area of wildlife habitat identified during the IDT process as having values important to wildlife.

Windfirm trees
Trees that have been exposed to the wind throughout their life and have developed a strong root system or trees that are protected from the wind by terrain features.

Windthrow
The act of trees being uprooted by the wind. Three types of windthrow include: endemic, where individual trees are blown over; catastrophic, where a major windstorm can destroy hundreds of acres; and management related, where the clearing of trees in an area make the adjacent standing trees vulnerable to windthrow.

Winter Range
An area, usually at lower elevation, used by big game during the winter months; usually smaller and better defined than summer ranges.

Withdrawal
The withholding of an area of Federal land from settlement, sale, location, or entry under some or all of the general land laws for the purpose of limiting activities under those laws in order to maintain other public values in the area.

Yarding
Hauling timber from the stump to a collection point.

Yield Tables
Tables that estimate the level of outputs that would result from implementing a particular activity. Usually referred to in conjunction with FORPLAN input or output. Yield tables can be developed for timber volumes, range production, soil and water outputs, and other resources.

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Appendix A

Reasons for Scheduling the Environmental Analysis of the Cholmondeley Project Area

Appendix A

Reasons for Scheduling the Environmental Analysis of the Cholmondeley Project Area

Introduction

This Appendix provides a detailed explanation of the rationale for a specific timber sale project and its importance to the multi-year timber program on the Tongass National Forest. To accomplish this, the following questions are answered:

- Why is timber from the Tongass National Forest being offered for sale?
- What steps must be completed to prepare a sale for offer?
- How does the Forest Service develop expectations about the market demand for timber?
- How does the Forest Service maintain an orderly and predictable timber sale program?
- How does the Forest Service decide where timber sale projects should be located?
- How does this project fit into the Tongass timber program?
- Why can't this project be located somewhere else?

Coordinated timber sale planning is essential for meeting the goals of the Tongass Land Management Plan and to provide an orderly flow of timber to local industry. To determine the volume of timber to offer each year, the Forest Service can look to current market conditions and the level of industry operations. However, the lengthy planning process, of which this document is a part, requires the Forest Service to rely on projections of future harvest levels to decide how many timber sale projects to begin each year. This document explains how the Forest Service uses information about future markets and past experience with the logistics of timber sale planning to determine the volume of timber that needs to be started through this process each year. Using a detailed timber sale schedule that provides information about each sale as it moves through each stage of the planning process, this Appendix explains the rationale and the necessity for completing this particular timber sale project at this point in time.

Why is Timber from the Tongass National Forest Being Offered for Sale?

National Legislation

On a national level, the legislative record is very clear about the role of the timber program in the multiple-use mandate of the national forests. The Organic Act of 1897, 16 USC 473-481 (partially repealed in 1976) directed the agency to manage the forests in order to "improve and protect the forest ... [and] for the purpose of securing favorable conditions of water flows, and to *furnish a continuous supply of timber* for the use and necessities of the citizens of the United States" (emphasis added.) The Multiple-Use Sustained Yield Act of 1960, 16 U.S.C. 528-531, directs the Forest Service to administer federal lands for "outdoor recreation, range, timber, watershed, and wildlife and fish purposes."

The National Forest Management Act of 1976 (16 U.S.C. 472a) states that "the Secretary of Agriculture...[may sell, at not less than appraised value, trees, portions of trees, or forest products located on National Forest System Lands]." Although the heart of the Act is land management planning, the Act also sets policy direction for timber management and public participation in Forest Service decision making. Under NFMA, the Forest Service was directed to "limit the sale of timber from each national forest to a quantity equal to or less than a quantity which can be removed from such forest annually in perpetuity on a sustained-yield basis" (16 U.S.C. 1611).

The NFMA directed the Forest Service to complete land management plans for all units of the National Forest System. Forest Plans were to be developed by an interdisciplinary team to provide for the coordination of outdoor recreation, range, timber, watershed, wildlife and fish, and wilderness.

Alaska-Specific Legislation

Legislation unique to Alaska also directs the Forest Service to maintain a commercial timber program. The Alaska National Interest Lands Conservation Act (ANILCA; P.L. 96-487, 1980) and the Tongass Timber Reform Act (TTRA; P.L. 101-625, 1990) speak directly to the issue of Tongass timber supply. Section 705(a) of ANILCA directed the Forest Service to maintain a timber supply from the Tongass at a rate of 4.5 billion board feet per decade. To ensure that the timber target was met, Congress provided for a $40 million annual earmark to fund pre-roading, cultural treatments and innovated logging systems.

Section 101 of TTRA repealed the timber supply mandate and fixed appropriations of ANILCA and replaced them with the following more general direction:

> Sec. 705. (a), Subject to appropriations, other applicable law, and the requirements of the National Forest Management Act (P.L. 94-588); except as provided in subsection 9d) of this section, the Secretary shall, to the extent consistent with providing for the multiple use and sustained yield of all renewable forest resources, seek to provide a supply of timber from the Tongass National Forest which (1) meets the annual market demand for timber from such forest and (2) meets the annual market demand from such forest for each planning cycle.

Timber from the Tongass National Forest is being offered as part of the multiple use mission of the Forest Service as identified in public laws. Alaska-specific legislation and the Forest Plan directs the Forest Service to seek to provide timber to meet market demand subject to appropriations and balancing of forest uses.

Tongass Forest Plan

The 1979 *Tongass National Forest Land and Resource Management Plan* was the first Forest Plan to be completed. A revised Forest Plan was issued in 1997 and modified in 1999. Subsequently, Alaska Federal Court Judge James K. Singleton vacated the 1999 TLMP ROD in a March 30, 2001 court decision.

Alaska Federal Court Judge James K. Singleton also directed the Forest Service to Supplement the Revised Forest Plan FEIS to consider the wilderness values of Inventorieds Roadless Areas. The Record of Decision for this Supplemental Environmental Impact Statement was signed in February 2003 and is consistent with the 1997 Record of Decision.The Roadless Area Conservation; Final Rule (Roadless Rule) was signed by the Secretary of Agriculture in January 2001. This rule generally established prohibitions on road construction, road reconstruction, and timber harvest in inventoried roadless areas on National Forest System lands. The rule prohibits logging and road building on nearly 60 million acres of lands, 9.3 million acres of which are within the Tongass National Forest.

In May 2001, the U.S. District Court for the District of Idaho enjoined the Forest Service from implementing the Roadless Rule, a decision that was subsequently appealed. In December 2002, a three-judge panel of the Ninth Circuit Court of Appeals reversed the Idaho ruling. The case is currently awaiting consideration by a larger panel of Ninth Circuit judges. The Roadless Area Conservation Rule did contains exemption language for the Tongass National Forest . This language exempts projects for which Availability of the Draft EIS was published in the Federal Register prior to January 12, 2001 from the prohibitions of the rule. Several projects, including this one, will be offered that meet exemption criteria.

With regard to timber production, the Record of Decision for the 1997 Plan states: "The Tongass National Forest will continue timber harvest consistent with sustained yield and multiple use goals… Although the maximum amount of timber that could be harvested during the first decade of the Revised Plan implementation is an average of 267 MMBF per year, a level of 200 MMBF or less is more likely to be offered over the next few years, given current market conditions and the transition that both the timber industry and the Forest Service is experiencing.

The timber resource will be managed for production of sawtimber and other wood products from timberlands available for sustainable timber harvest, on an even-flow, sustained-yield basis and in an economically efficient manner. We will seek to provide a timber supply sufficient to meet the annual market demand for Tongass National Forest timber and the market demand for the planning cycle…

The Tongass National Forest will continue to allow timber harvest while maintaining sustained yield and multiple use goals. The forest-wide standards and guidelines for timber include general direction to "[e]nsure that silvicultural systems other than clearcutting are considered through an appropriate project level analysis process. However, uneven-aged management systems will be limited to areas where yarding equipment suited to selective logging can be used…"

Forest-wide, considering all land allocations where timber harvest is permitted, it is estimated that 65 percent of harvesting will involve clearcutting, with the remaining 35 percent utilizing other methods."

In the day to day operation of the Tongass timber program, the Forest Service attempts to strike a balance among timber availability as documented in the Forest Plan, the market demand for timber in Southeast Alaska, the needs and desires of other forest users, and funding allocations made by Congress.

What Steps Must Be Completed to Prepare a Sale for Offer?

The timber sale program is complex. A number of projects are underway at any given point in time, each of which may be in a different stage of planning and preparation. A system of checkpoints, or "gates", helps the Forest Service track the significant milestones of each project from inception to contract termination. Each project passes through all of the following gates, with the complexity of the sale determining the complexity of the final product at each stage.

Gate 1 - Completion of Position Statement

The Position Statement is a brief analysis of the project area with the intent of determining the feasibility of the potential timber sale. This is the first step in the timber sale planning process and it is usually completed from seven to ten years before a sale is offered. After the Position Statement is developed, the Forest Service decides whether to continue to the next phase of the project where a significant investment in time and money will be made.

Gate 2 – Sale Area Design, Environmental Documentation, and Decision

This phase of the project is commonly referred to as the "NEPA" phase and includes inventory, public scoping, analysis, draft disclosure of the effects of the project on the environment, public comment, final analysis and disclosure, decision, potential appeal, and litigation. Gate 2 activities are generally completed two to six years before a sale is offered. The end product of this phase, an environmental decision document, forms the starting point for the next phase.

Gate 3 – Plan Implementation and Field Layout

Gate 3 activities are typically completed one to three years before a sale is offered. During this phase, the information and direction included in the decision document (Gate 2) is used to designate the actual project on the ground. Additional site-specific information is collected at this time.

Gate 4 – Appraisal Offering Package

The costs and value associated with the timber sale designed in Gate 3 are computed and packaged in a timber sale contract. The contract tells the prospective timber sale purchaser how the sale must be harvested to be in conformance to the project decision document. This phase of the Gate system occurs during the final year of the project development and culminates with the advertisement of the project for sale.

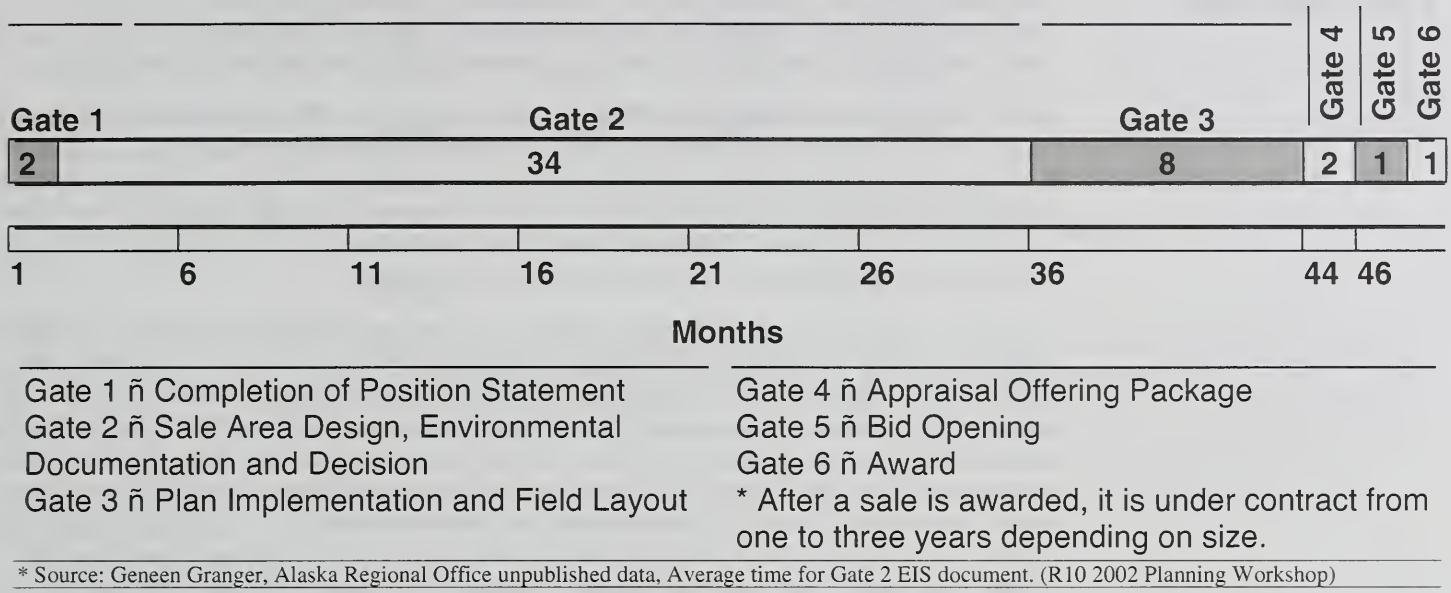
Gate 5 – Bid Opening

Gate 5 is completed with the opening of bids for the project. If a bid is submitted, contractual provisions govern when the award of the sale takes place and when the sale will be completed and how timber removal is to occur.

Gate 6 - Award

Gate 6 is the formal designation of a contract between a bidder and the Forest Service.

Figure A-1
Average Timeline for the Gate System



Gate 1 ñ Completion of Position Statement
Gate 2 ñ Sale Area Design, Environmental Documentation and Decision
Gate 3 ñ Plan Implementation and Field Layout
Gate 4 ñ Appraisal Offering Package
Gate 5 ñ Bid Opening
Gate 6 ñ Award
* After a sale is awarded, it is under contract from one to three years depending on size.

* Source: Geneen Granger, Alaska Regional Office unpublished data, Average time for Gate 2 EIS document. (R10 2002 Planning Workshop)

How does the Forest Service Develop Expectations about Future Timber Markets?

The Tongass National Forest makes two determinations on volume to be offered. The first is a determination on volume to be offered for the current year (annual market demand). The annual market demand is analogous to assessing industry performance in the short-term. In the short-run a firm will make use of its existing equipment to maximize profits or minimize losses. The general approach is to consider the timber requirements of the region's sawmills at different levels of operation and under different assumptions about market conditions and technical processing capability. These assumptions provide a basis for estimating the volume of timber likely to be processed by the industry as a whole in any given year. Timber inventory requirements are acknowledged and estimated in a related calculation. The volume of timber likely to be purchased is equal to the volume needed to make up any inventory shortfall in addition to the volume likely to be harvested in the coming year. The document titled *Evaluating the Demand for Tongass Timber* (USDA, Forest Service, R-10; Morse; September 28, 1998) forms the basis for how these estimates were developed. The document titled *Tongass National Forest Timber Sale Procedures* (USDA, Forest Service, R-10; Morse, October 2000) documents actual estimates for the current year. This estimate is what the Tongass plans to offer for the current year of the Ten Year Timber Sale Schedule pending sufficient funding to do so. Final procedures can be located in the document titled: *Responding to the Market Demand for Tongass Timber* (USDA, Forest Service, R-10-MB-413, Morse, April 2000.

Based on the analysis documented in the *Tongass Timber Sale Procedures*, for Fiscal Year 2003, the Tongass National Forest offering required to meet timber supply objectives is 151 MMBF. The offer planned will be a combination of new, previously offered, or previously offered and reconfigured timber sales. Both standing timber and salvage will be components of the program. Offerings will consist of those targeted for Small Business qualified firms as well as a portion of the volume being made available for the open market.

Life of the Forest Plan (Market Demand over the Planning Cycle)

Given the long time involved in preparing a timber sale, the proposed timber sales in this document may not be harvested for 3 to 4 years or longer, not including appeals or litigation. The Forest Service needs some idea of what the long-term timber demand will be given cycles in the market. On average, what should the Forest Service plan for offer, given that timber from this NEPA document may not be harvested for 4 years into the future? The Forest Service needs to take a long-term view for planning purposes. To answer these questions, the Forest Service asked the Pacific Northwest Research Station for professional assistance.

As the Tongass Land Management Plan was being revised in 1997, research economists at the Pacific Northwest Research Station (PNW) were asked to update their earlier projections of Alaska timber products output and timber harvest by ownership. The most recent projections of timber harvest over the planning cycle account for several dramatic changes in the region's manufacturing capabilities, increased competition from a number of sources, and the steady erosion of North America's share of Japanese timber markets.

The Forest Service documents these projections and the means of implementation through the issuance of a Ten Year Timber Sale Schedule. Each year this plan is updated whereby the current year is dropped at the culmination of the fiscal year and a new year ten is added. The basis for this schedule is long-range timber market projections documented in the publication titled *Timber Products Output and Timber Harvest in Alaska: Projections for FY97-10* (Brooks and Haynes; PNW-GTR-409, September, 1997). These projections of Alaska timber products output, the derived demand for raw material, and timber harvest by owner are developed from a trend-based analysis. These projections reflect the consequences of recent changes in the Alaska forest sector and long-term trends in markets for Alaska products. With the closure of the two Southeast Alaska pulp mills, demand for Alaska National Forest timber now depends on markets for sawn wood and the ability to export manufacturing residues and lower grade logs. Three alternative projections are used to display a range of possible future demand (Table A-1). Areas of uncertainty include the prospect of continuing changes in markets and in conditions faced by competitors and the speed and magnitude in investment in manufacturing in Alaska.

Demand projections are important for program planning. They provide important guidance to the Forest Service for requesting budgets, for making decisions about workforce and facilities, and for indicating the need to begin new NEPA analysis for future program offerings. They also provide a basis for expectations regarding future harvest, and thus provide an important source of information for establishing the schedule of probable future sale offerings. The weight given to the projections will vary depending on a number of factors, such as how recently they were done, and how well they appear to have accounted for recent, site-specific events in the timber market.

Table A-1
Projected National Forest Harvest[1]

	Projected Harvest (MMBF)			
Fiscal Year	**Low**	**Medium**	**High**	**Actual**
1998	77.3	86.0	112.2	119.8
1999	86.4	99.3	127.9	145.8
2000	95.5	115.9	142.7	146.8
2001	104.6	129.0	157.7	47.8[2]
2002	113.7	134.9	173.1	29.6[3]

2003	122.8	140.8	188.9	
2004	131.9	146.5	205.0	
2005	131.9	152.2	221.4	
2006	131.9	157.8	238.2	
2007	132.0	163.4	255.3	
2008	132.0	168.9	272.8	
2009	132.1	174.3	290.7	
Average	112.8	132.6	182.2	98
Mean		168.7		

[1] For Fiscal Years 2003-2009, the Tongass National Forest plans to schedule approximately 160 MMBF for sale each year over the life of the Forest Plan. This schedule is based on the projections documented in *Timber Products Output and Timber Harvest in Alaska: Projections for FY97-10* (Brooks and Haynes; PNW-GTR-409, September, 1997), and current volumes in the timber sale pipeline process. Prior to the beginning of each fiscal year the amount of volume **to be** scheduled in that fiscal year is once again analyzed to determine if the projection meets the anticipated need.
[2] Truncated logging season due to Judge James K. Singleton's TLMP Appeal Decision, March 30, 2001. [3] Tongass volume harvested as of August 31, 2002.

How does the Forest Service Maintain an Orderly and Predictable Timber Sale Program?

Pools of Timber (Pipeline Volume)

As discussed earlier, the Forest Service tracks accomplishment of various stages of development of each timber sale with the Gate System process. From a timber sale program standpoint, it is also necessary to track and manage multiple projects through time as projects collectively move through the Gate System. Tracking of the multiple projects can be likened to following various segments of several projects through a pipeline of time. Because of the relatively long timeframes needed to accomplish a given timber sale and the complexities inherent in timber sale project and program development, it is necessary to track various timber sale program volumes from Gate 1 through Gate 6. Gate 1 volume represents a large pool of program volume, but represents a relatively low investment from project to project. This relative investment level offers the timber program manager a higher degree of flexibility and thus, does not greatly influence the flow of volume through the pipeline. In addition, tracking of how much volume near the end of the pipeline that is in appeals or litigation may be necessary to determine potential effects on the flow of potential timber sales.

The goal of the Tongass National Forest is to provide an even flow of timber sale offerings on a sustained yield basis. In past years, this has been difficult to accomplish due to continual reductions in the suitable timberland base, reductions in the timber industry processing capabilities, rapid market fluctuations and Forest Plan modifications and litigation. To achieve an even flow of timber sale offerings, 'pools' of projects in various stages of the Gate System will be maintained so volume offered can be balanced against current year demand and market cycle projections. Today, upward trends in demand are reacted to by moving outyear timber projects forward leaving outyears not capable of meeting the needs of the industry. In other instances, a number of new projects are started based on today's market but not available for a number of years. By the time the added projects are ready for offer, the market and demand for this volume has changed. Three pools are being tracked to achieve an even flow of timber sale offerings:

- **Timber volume under analysis (Gate 2):** Timber volume under analysis contains sales being analyzed and undergoing public comment through the NEPA process.

This process can often take from one to five years and reaches a significant milestone when a NEPA decision is made. This pool includes any project with a formal Notice of Intent through those with a decision document issued. Volume in appeals and litigation will be tracked as a subset of this pool as necessary.

- **Timber volume available for sale (Gate 3, Gate 4 and Gate 5)**: Timber volume available for sale contains sales for which environmental analysis has been completed, and administrative appeals, and litigation (if any) have been resolved. They have also been fully prepared, and are available to managers to schedule for sale offerings. Managers need to maintain enough volume in this pool to be able to schedule future sale offerings in an orderly manner of the size and configuration that best meets the need of the public. As a matter of policy, and sound business practice, the Forest Service attempts to announce probable future sale offerings at least one year in advance. This allows potential purchasers an opportunity to do their own evaluations of these offerings in order to determine whether to bid, and if so, at what level.
- **Timber volume under contract (Gate 6)**: Timber volume under contract contains sales that have been sold and a contract awarded to a purchaser, but has not yet been fully harvested. Timber contracts typically, but not always, give the purchaser three years to harvest and remove the timber purchased. Long standing Forest Service practice is to attempt to maintain about two to three years of unharvested timber volume under contract to timber purchasers. This volume of timber is the industry's dependable timber supply, which allows immediate flexibility in business decisions. This practice is not limited to the Alaska Region, but is particularly pertinent to Alaska because of the nature of the land base. The relative absence of roads, the island geography, the steep terrain, and the consequent isolation of much of the timber land means that timber purchasers need longer-than-average lead times to plan operations, stage equipment, set up camps, and construct roads prior to beginning harvest.

What drives the various timber sale program pipeline pool volume is a combination of actual harvest and projected demand. As purchasers harvest timber, they deplete the volume under contract. Managers track harvest, and offer sales that give the industry as a whole the opportunity to replace this volume and build or maintain their working inventory. Although there can be significant variation for practical reasons from year to year, in the long-run, over both the high points and low points of the market cycle, timber harvest will equal timber sales.

The Forest Service, based on historical patterns, determines the amount of pipeline volume in each of the pools. Table A-2 displays volume levels that are expected to be maintained in each pool.

- Pool 1, Timber Volume Under Analysis, is expected to be maintained at approximately 4.5 times the amount of anticipated harvest.
- Pool 2, Timber Volume Available for Sale, is expected to be maintained at approximately 1.3 times the amount of anticipated harvest.
- Pool 3, Volume Under Contract, is expected to be maintained at approximately 3 times the amount of anticipated harvest.

The objective of the pools concept is to maintain sufficient volume in preparation and under contract to be able to respond to yearly fluctuations in a timely manner.

Table A-2
Pipeline Pool Matrix

Pipeline Pool Volume	Flows	End of FY 02	Planned During FY 03	End of FY 03
1. Volume Under Analysis[1] **(Gate 2)** (MMBF) *(4.5 times expected harvest)*		413[2]	562[3]	293[3]
2. Volume Available for Sale[4] **(Gate 3, Gate 4 and Gate 5)** (MMBF) *(1.3 times expected harvest)*	NEPA Cleared	108[3]	319[3]	276[3]
	Offered		151[5]	
	Sold		123[5]	
3. Volume Under Contract[6] **(Gate 6)** (MMBF) *(3.0 times expected harvest)*		196[7]		369[8]
	Volume Harvested*		123[9]	

Matrix crosswalk between Gate Tracking System and Pools of Timber Concept:

[1]Gate 2: Decision document that is viable for sale after completion of appeals and litigation.
[2]Actual figure from Tongass National Forest Schedule of Proposed Actions.
[3]Estimated figure.
[4]NEPA cleared timber volume: Gate 3, field preparation work; Gate 4, timber sale contract package preparation: Gate 5, Timber Sale bid opening.
[5]Tongass National Forest Timber Sale Procedures, Morse, October 2000, Table page 4, updated August 2003 by William Wilson, Regional Office, Forest Management Planning Group Leader.
[6]Gate 6: Timber sale award and contract execution, based on the Timber Sale Statement of Accounts.
[7]Volume under contract as of June 30 2002. Assumes the following: GFP Sawmill (50MMBF) and Metlakatla Sawmills (95 MMBF) removed from capacity estimate. Estimate of uneconomic timber sales eligible for cancellation removed from VUC (70MMBF). Sales not available due to Judge Singleton's injunction removed from VUC (65MMBF).
[8]Three times the amount of volume projected in the LOW market scenario given in Timber Output and Timber Harvests in Alaska: Projection for 1997 – 2010, Gen. Tech. Report. PNW-GTR-409, Portland, Oregon, USDA Forest Service, PNW Research Station.
[9]Projected harvest for FY 2003, from the PNW Research Station using the LOW market scenario (see #8 above).
*Note-The amount of volume estimated to be harvested for the year sets the basis for what will be maintained in Pools 1-3 (Gates 2 through 6). Should this estimate be incorrect, adjustments can be made in the following years without significant departures in outyear program capabilities.

Table A-3. Timber Volume in Appeals and/or Litigation

Timber volume remanded on appeals and/or enjoined in litigation *	33.9 Million Board Feet

*As of 01.01.03. This figure does not include those environmental documents on hold due to Judge Singleton's March 30 , 2001 court ruling.

How Does the Forest Service Decide Where Timber Sale Projects Should be Located?

The Allowable Sale Quantity (ASQ)

The 1997 Forest Plan Record of Decision established an ASQ for timber at 2.67 billion board feet per decade, which equates to an annual average of 267 million board feet (MMBF). The ASQ serves as an upper limit on the amount of timber that may be offered for sale as part of the regularly scheduled timber sale program. It consists of two separate Non-Interchangeable Components (NICs) called NIC I, which is 2.2 billion board feet of timber per decade, and NIC II, which is .47 billion board feet per decade. There are two purposes of partitioning the ASQ into two components:

1) to maintain the economic sustainability of the timber resource by preventing the over-harvest of the best operable ground and
2) to identify that portion of the timber supply that is at risk of attainment because of marginal economic conditions.

The NIC I component includes lands that can be harvested with normal logging systems. The NIC II component includes land that has high logging costs due to isolation or special equipment requirements. Most of these NIC II lands are presently considered economically and technically marginal.

The Tongass National Forest has been unified under one Forest Supervisor. For planning and scheduling purposes, the allowable sale quantity is distributed by Ranger District. Each District has been allocated a portion of the timber harvest program based on the FORPLAN computer run and availability of suitable and available acres, to implement the Forest Plan, and Section 101 of the Tongass Timber Reform Act (1990). The Forest Plan set the Forest-wide allowable sale quantity (ASQ) upper limit at 267 MMBF per year. The distribution of the planned ASQ harvest among the Districts is listed in Table A-4 (all volumes are identified as sawlog plus utility).

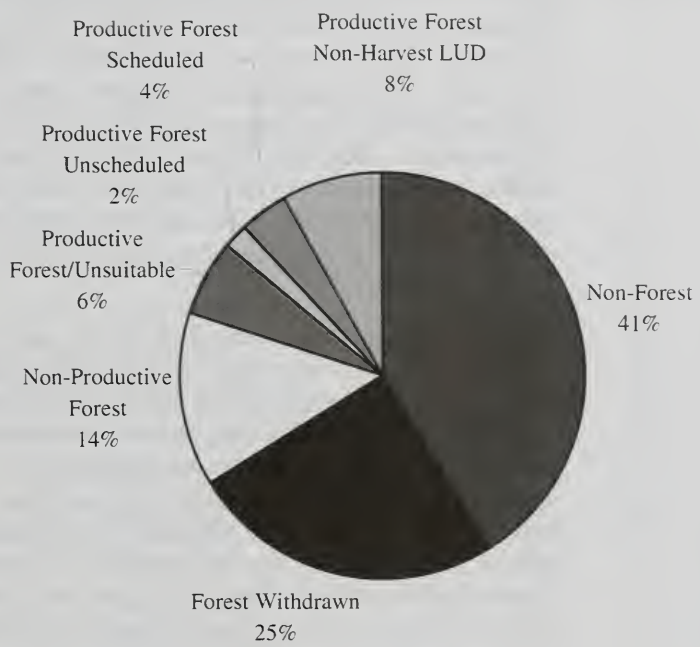
Historically, timber harvest has been spread across the Tongass National Forest with the long-term timber sales and mills located in Sitka and Ketchikan. The suitable timber land base is spread across the Forest as displayed in Figure A-2. In answer to the question presented for this section of the Appendix, the suitable timber base is capable of producing the ASQ documented in the 1997 Forest Plan Record of Decision.

Table A-4
Distribution of ASQ Among the Tongass National Forest Ranger Districts

Tongass National Forest Ranger District	Non-Interchangeable Components NIC I	NIC II
Ketchikan	32	7
Thorne Bay	42	9
Craig	33	7
Wrangell	28	6
Petersburg	50	9
Sitka	17	4
Hoonah	7	2
Juneau	7	2

Yakutat	4	1
Admiralty	0	0
NIC Totals	220	47
ASQ Total (mmbf)	267	

Figure A-2
1997 Forest Plan Timber Resource Suitability Analysis



The chart depicts the productive suitable land base that is scheduled for timber harvest activities. Four percent of the Tongass land base generates the allowable sale quantity of 267 MMBF per year. The remainder of the land, approximately ninety-six percent, is not scheduled, does not allow or will not support timber harvest activities.

Non-Forest – Land that has never supported forests, eg. muskeg, rock, ice, etc.
Forest Withdrawn – Forest lands designated by Congress, the Sec. of Agriculture, or Chief for purposes that preclude timber harvest are classified as unsuitable, eg. LUD Congressionally Designated Roadless Areas.
Non-productive Forest – Forest land not capable of producing crops of wood.
Productive, Non-harvest LUD – Productive forest lands that are not suited for timber production due to Forest Plan land use designation eg. Semi-Remote Recreation, Old-growth Habitat, etc.
Productive Forest Unsuitable – Forest land unsuitable for timber due to physical attributes (steep slopes) and/or inadequate information to insure restocking trees (soils).
Productive Forest Scheduled – Forest land scheduled over the rotation available for timber harvest.
Productive Forest Unscheduled – Forest land that meets all the criteria for timber production

availability but not scheduled for harvest over the rotation.
Source: Appendix A, 1997 Forest Plan

District-Level Planning

The Forest Supervisor for the Tongass National Forest has discrete responsibilities for the overall management of the Forest's timber sale program. Included within these responsibilities is making the determination on the amount of timber volume to be made available to industry, as described above. Once a determination is made for the current year (annual demand) offer level, the information is presented to Congress via the Regional Forester and Chief of the Forest Service. Whether or not funding is appropriated to attain the program is the responsibility of the Congress and the President of the United States.

While the debate on funding takes place, the Tongass Forest Supervisor directs the District Rangers to formulate timber sale schedules that attain the prescribed offer level for the current year as well as develop outyear timber programs based on projected market demand for the planning cycle. District Rangers are also directed to prioritize efforts in areas that are not subject to the uncertainties of pending legistlation and litigation. It is the Ranger's role to recommend to the Forest Supervisor timber sale projects that meet Forest Plan goals and objectives. Districts work on various projects simultaneously resulting in continual movement of projects through the stages of the timber program pipeline. Their schedule allows the necessary time to complete preliminary analysis, resource inventories, environmental documentation, field layout preparations and permit acquisition, appraisal of timber resource values, advertisement of sale characteristics for potential bidders, bid opening, and physical award of the timber sale. Once all of the Rangers' recommendations are made and compiled into a consolidated schedule, the Forest Supervisor is responsible for the review and approval of the final plan.

Pending Congressional appropriations, the sale schedule is implemented. In the event insufficient funds or resolution to pending litigation or legistlation serve to delay the desired outputs, timber sale projects are selected and implemented on a priority basis. Generally, the higher priority projects include sales where investments such as road networks, camps or log transfer facilities have already been established or where land management status is not under dispute. Those sales that are not implemented or only partially implemented are moved to the outyear. The sale schedule becomes very dynamic in nature due to the number of influences on each of the districts. A formal review of the schedule is done annually by the Forest Supervisor in consultation with the District Rangers, and amendments are made as needed through the course of the year. (The Tongass Timber Sale Plan is located on the Tongass National Forest Website, *www.fs.fed.us/r10/tongass/*).

The National Forest Management Act requires the Forest Service to develop timber sale schedules that encompass the life of the Forest Plan. The recent Tongass National Forest Planning process culminated in issuance of the *Forest Plan Record of Decision for the Tongass Land and Resource Management Plan*. In response to this Plan, the Tongass has prepared a Ten Year Timber Sale Schedule for Fiscal Years 2002-2012. The Fiscal Year 2003 offer level is based on annual market demand estimates. Planning delays attributable to resolution of the Roadless Rule and court ordered injunctions has effected this offer level. The remaining years, 2004-2012, are based on market demand projections over the planning cycle. Table A-5 denotes the first year of the ten-year plan. Fiscal Year 2003 is listed below to show the reader an example of the information available and display the timber sales scheduled for the current fiscal year.

Table A-5
Tongass Ten Year Timber Sale Plan-Fiscal Year 2003

NEPA Project	Decision Date	RD	Sale Name	Vol S+U (MMBF)	Class	FY03 Gate 3	FY03 Gate 5
Licking Creek		KMRD	Licking Creek	16.8	S	12.0	12.0
Licking Creek		KMRD	Licking Creek South	4.8	S	4.8	4.8
Boundary (H.L.)		KMRD	Boundary	3.0	S	3.0	3.0
Mop Pt/91 Knot		KMRD	91-Knot Reoffer	0.5	S	0.5	0.5
Cholmondeley		CRD	Dr. Point	16.0	S	16.0	16.0
Cholmondeley		CRD	Skowl	7.0	S	7.0	7.0
Craig Small Sales		CRD	Various Small Sales	0.5	S	0.5	0.5
Cholmondeley		CRD	Sunny	7.0	S	7.0	7.0
Cholmondeley		CRD	Cher	5.0	S	5.0	5.0
Chasina EIS		CRD	Johnston Mtn. (FY01 Sale)	5.9	S	0.5	5.9
TNB Small Sales EA		TNB	Various Small Sales	3.0	S	3.0	3.0
Roadside EA	Dec 02	TNB	Small Sales	2.0	S	2.0	2.0
Roadside EA	Dec 02	TNB	Small Sales	2.0	S	2.0	2.0
Lab Bay EIS	Jan 97	TNB	Thorne Island	3.5	S	0.5	3.5
Luck Lake	Jun 00	TNB	Luck Lake (FY 00)		O		8.0
Control Lake EIS	May 98	TNB	Mad Rush (FY 01)		O		5.3
Heceta Second Growth		TNB	Heceta CT	8.0	S	8.0	8.0
Couverden		JRD	Homeshore	25.0	S	15.0	15.0
HRD Small Sales		HRD	Small Sales	0.4	S	0.4	0.4
Yakutat Salvage EA		YRD	Yakutat Salvage	10.0	S	10.0	10.0
Scott Peak EIS		PRD	Sherman Peak	12.0	S	8.0	8.0
Woodpecker	Proposal	PRD	Woodbine (Unit 187)	0.1	S	0.1	0.1
Woodpecker	Proposal	PRD	Woodchuck (Unit 161A)	0.2	S	0.2	0.2
Twin Creek EA		PRD	Frenchy 99		S		1.0
South Lindenberg EIS	Dec 96	PRD	Redo		S	5.0	5.0
Threemile		PRD	Threemile	20.0	S	20.0	20.0
South Lindenberg	Dec 96	PRD	Short Run		S	1.0	1.0
Doughnut EA	Apr 00	WRD	Doughnut		S		3.4
Skipping Cow	Apr 00	WRD	Skipping Cow		S		31.0

* These NEPA documents are in-progress and may or may not have an action alternative selected. Volumes displayed are for planning purposes only and do not constitute a decision.

The Ten Year Schedule provides a significant amount of information and is described as follows:

NEPA Project: Environmental document project name. This name may or may not differ from the timber sale project name depending on how many sales originate from the original NEPA document.

Decision Date: The date of the decision document, whether planned or actual. "X" denotes project has started and completion is within the Fiscal Year but a specific date (e.g. month) is not firm.

RD: Ranger district office where project is located (PRD=Petersburg Ranger District).

Sale Name: Timber sale project name. FY 00 or FY 01 designates that this timber sale was originally planned to be sold in fiscal year 2000 or 2001, but due to late NEPA decisions, personnel going to lower 48 states' fires, and other delays caused the timber sale to be advertised late and sold early in FY 2001. The timber sale may also have been advertised and unsold and the sale is now planned to be reofferred.

Vol S+U (MMBF): Possible timber volume (sawlog plus utility) that could result if an action alternative is selected from the NEPA document. Generally only appears once in the year the decision is made. If no volume is shown, decision on document was made in another fiscal year.

Class: Timber sale size class determination (S-SBA, O=open sale to all bidders).

FY02 Gate 3 (Layout): Only appears in fiscal year sale is to be laid out and appraised. May appear in more than one year.

FY02 Gate 5 (Offer): Only appears in fiscal year sale is to be offered. Number designates potential volume.

The location of timber sale projects are based on the land allocation directed in the Forest Plan decision. Timber sales are located where permitted based on the prescription and objectives of the land use designation. Timber sale projects are located to varying degrees in land use designations identified as Timber Production, Modified Landscape, and Scenic Viewshed.

As stated earlier, the District Ranger is responsible for identifying and recommending the project areas for the Ten Year Timber Sale Schedule. The considerations the Ranger makes on each project includes but are not limited to the following:

- The project area contains a sufficient number of acres allocated to development land use designations to make timber harvest in the area appropriate under the Forest Plan. There is an adequate amount of suitable and available land for timber harvest opportunities. Available information indicates harvest of the amount of timber volume being considered for this project can occur consistent with the Forest Plan standards and guidelines and other resource protection requirements.
- The project and proposed timber harvest volume can contribute to achieving the goals and objectives of implementing the Forest Plan.
- The potential investment in infrastructure (roads, bridges, log transfer facilities, camps, rock pits, etc.) is necessary for sustainable timber harvest offerings. Where infrastructure already exists, this project will enable maintenance and upgrade of the facilities, which is necessary for removal of timber volume.
- The potential effects on subsistence and other resources.
- Based on current year and anticipated outyear timber volume demand; volume currently under contract; anticipated Congressional allocations; and the availability of resources to fully prepare and offer this project for sale, this project is consistent with and meets all laws and regulations. These laws and regulations include Forest Service Policy in the Alaska Region Regional Guide; Best Management Practices; the 1997 *Tongass Land and Resource Management Plan FEIS and ROD*; and all other laws and regulations governing the removal of timber from National Forest System lands.

How Does This Project Fit into the Tongass Timber Program?

The Cholmondeley project is proposed for offer beginning in Fiscal Year 2003 (Tongass National Forest Ten Year Timber Sale Schedule, approved by Thomas Puchlerz, Forest Supervisor, September 30, 2002). A court injunction delaying this decision has recently been lifted allowing the project to move forward. This ten year schedule is being revised to account for this injunction and for development LUDs currently restricted under the Roadless Rule. Forest-wide, total volume which will be available for offer in Fiscal Year 2003 is approximately 84.6 MMBF. This is almost 67MMBF short of the projected demand of 151MMBFForest-wide, total offer volume being planned for Fiscal Year 2003 is approximately 151 MMBF. In order to achieve the planned offer date, the Cholmondeley project has a proposed Gate 2 completion date of Fiscal Year 2003 with Gate 3 implementation to begin in Fiscal Year 2003.

The Cholmondeley project is currently in Gate 2, "Volume Under Analysis." The project's action alternatives being addressed in the NEPA analysis range from approximately 23.4 MMBF to 35.2 MMBF that could contribute to the Tongass Timber Sale Program. As described earlier, the volume of timber needed to maintain this Pool is 413 MMBF. Currently, forest-wide, Pool 1 contains from 162.6 MMBF to 187.4 MMBF inclusive of this project. Therefore, the Cholmondeley project is consistent with program planning objectives and necessary to meet the goal of providing an orderly flow of timber from the Tongass on a sustained yield basis. Given the included information, it is reasonable to be conducting the environmental analysis for this project at this time.

Why Can't This Project Occur Somewhere Else?

As previously discussed, the market demand for timber for the next 10 years is expected to average 168.7 MMBF per year. The suitable and available land base on the Tongass is capable of supporting an Allowable Sale Quantity of 267 MMBF annually, 220 MMBF of which is considered economical (i.e. the NIC I component). Based on the projected market demand for the planning cycle, all suitable timberlands will eventually be scheduled for harvest to meet the current and projected demand for raw material in Southeast Alaska. The relocation of this project to another area is inefficient and potentially contrary to the standards and guidelines of the Forest Plan. This decision is based on the cumulative impact on other resources from past harvest activities, the location of timber sales under contract, and the eventual use of all suitable lands for timber sale projects.

- Areas with available timber will be necessary to consider for harvest in order to seek to provide a supply of timber from the Tongass National Forest which (1) meets the annual market demand for timber from such forest and (2) meets the market demand from such forest for each planning cycle, pursuant to Section 101 of the Tongass Timber Reform Act (TTRA).
- The potential effects on subsistence resources are projected to differ little based on the sequence these areas are harvested. Harvesting other areas with available timber on the Tongass National Forest is expected to have similar potential effects on resources, including those used for subsistence, because of widespread distribution of subsistence use and other factors. Harvest within other areas is foreseeable, in any case over the forest-planning horizon under the Forest Plan.

- Providing substantially less timber volume than required to meet Forest Plan and TTRA Section 101 timber supply and employment objectives in order to avoid harvest in the project area is not necessary or reasonable.
- It is reasonable to schedule harvest in the project area rather than in other areas at the present time based on previous harvest entry and access, level of controversy over subsistence and other effects, the ability to complete the National Environmental Policy Act (NEPA) process and make timber available to meet the needs of dependent industries. Other areas that are reasonable to consider for harvest in the near future are the subjects of other project EISs that are currently ongoing or scheduled to begin soon.

Appendix B

Response to Public Comments on the Cholmondeley Draft EIS and Subsistence Testimony

Appendix B

Response to Comments on Cholmondeley Timber Sales Draft EIS

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Appendix B

Response to Comments on Cholmondeley Timber Sales Draft EIS

Introduction

The formal comment period on the Draft Environmental Impact Statement (Draft EIS) for the Chomondeley Timber Sales on the Tongass National Forest in Alaska ended on February 28, 2001. One hundred sixty-nine letters, faxes, phone calls and e-mail messages were received. Of these, one hundred fifty-one contained substantive comments.

All comment letters have been analyzed using a process called content analysis. Concerns have been categorized and documented in a table that has been placed in the Cholmondeley Project Planning Record. The goal of the content analysis process is to identify all relevant issues, not just those represented by the majority of respondents. In addition to capturing relevant factual input, the relative emotion and strength of public sentiment behind particular viewpoints have been identified. Our intention is to represent the public's viewpoints and concerns as fairly as possible, and to effectively respond to those concerns.

Public comment on the Draft EIS is rich and varied, and reflects, for the most part, respondents' livelihoods and lifestyles. In general, residents and those with commercial interests in the two lodges and in mariculture operations are deeply concerned with potential negative effects on their own way of life, the environment, and their local economy. Their particular concerns are echoed, often in much greater detail, by conservation/preservation organizations as well as other individuals. These respondents express almost unilateral opposition to the proposed timber sale, and the Preferred Alternative in particular. On the other hand, those connected with the wood products industry generally support the project and maintain that any potential environmental effects can be satisfactorily mitigated. The only potential point of compromise between the two positions is the suggestion, offered by those who oppose the project, that if logging must be done, it should at least be done primarily by helicopter. But even that does not represent a favored position among many respondents. For economic reasons, those connected with the wood products industry favor conventional logging methods; and for both economic and environmental reasons, most other respondents would prefer no logging at all, by any method.

These competing views are expressed by respondents within the context of a number of issues relevant to the proposed timber sale. Many respondents direct their comments specifically to one or more of the five issues identified from the scoping phase of the project. More often, however, comments relevant to those issues are expressed within the context of broader areas of interest. This is particularly true of concerns related to the first

three issues. Those issues target the effects of the Cholmondeley Project on Saltery Cove, Clover Bay, and Sunny Cove. Some concerns are common to all three issues, such as concerns over domestic water. While a number of respondents specifically address domestic water for one of those areas, many others express concerns over water quality and protection of water resources in general. Therefore, rather than describing respondents' concerns strictly in terms of the five issues from scoping, this appendix will describe the prominent themes discussed in public comment on the Draft EIS, under which the five scoping issues are included. Many letters contained similar comments, so for this appendix, the analysts selected comments that best represented the concerns expressed for each category, with responses from the Cholmondeley Interdisciplinary Team following the comments for each category.

The comments have been grouped into 22 broad topics and one "corrections" category as shown in the table of contents for this appendix. Letters from federal and state agencies, cities, and tribes, as well as subsistence hearting testimony, is also included in this appendix.

1. National Issues

a. Logging on Public Land

Several people expressed concern for Forest Service Policies that include timber harvest on public lands as a management tool. Some people expressed a desire for a national analysis of the timber sale program before additional sales move forward. Some of the representative comments are these:

> *"We know this is not the response you want from us, but we are just reflecting what millions of angry Americans are saying: ENOUGH IS ENOUGH! NO MORE COMMERCIAL LOGGING IN OUR FORESTS. WE MUST SAVE WHAT'S LEFT FOR OURSELVES AND FUTURE GENERATIONS!"* JLD-36

> *"Too many public dollars have been wasted on subsidizing the destruction of Public (our) Lands. These timber sales represent an 11th hour liquidation of Public assets. Please, please manage for the future."* KH-43

Response: Congress has, in numerous laws and regulations, specifically included timber harvest among the many multiple uses of the National Forest. The Forest Service has a responsibility to fulfill the National Forest Management Act's multiple use, sustained yield, and resource protection requirements. The Tongass Forest Plan provides guidance in accomplishing this. The objective is not to manage each acre for all the multiple uses that the forest can provide but to manage the Forest as a whole for the entire range of uses in a sustainable way. Timber production is one of the uses for which land is allocated in the Forest Plan. The Forest Plan allocates different areas to different resource outputs. It provides standards and guidelines to ensure that the Plan's objectives and applicable laws and regulations are met.

The proposed Cholmondeley timber sale would implement Forest Plan direction. Portions of the project area are managed primarily for old growth (the old growth reserves), portions to protect connectivity (such as the area within 1,000 feet of the salt water), and portions for timber production (suitable timber lands). Other areas are managed for other outputs. In all cases, Forest Plan standards and guidelines would be implemented to ensure compliance with the Plan. The Tongass Forest Plan, which took over 10 years to develop, allows timber harvest on about 4% of the Tongass National Forest. Approximately 3% of the Cholmondeley project area is planned for harvest.

b. Roadless Area Conservation Rule

A number of people expressed surprise and concern that the Cholmondeley project was continuing to be considered for timber harvest and road construction, given the recent signing of the Roadless Area Conservation Rule by Secretary of Agriculture Dan Glickman. Others pointed out that Rule specifically provided for a transition on the Tongass by allowing projects to proceed that had a Draft EIS published prior to the Rule. As noted in the EIS, the Cholmondeley project area is within the McKenzie Roadless Area. Following are some representative comments:

> *"I thought President Clinton's recent actions had preserved this area from logging and I am appalled to learn that it could still take place."* JHK-53
>
> *"President Clinton's Roadless Area initiative leaves many essential roadless areas unprotected. Immediately under assault is the 84,000-acre McKenzie Roadless Area."* HB-62
>
> *"This proposed sale is in the Mackenzie Roadless Area. Though it was initiated in time to precede the recent Executive Order protecting roadless areas, the public values and recognition of scientific arguments reflected in that decision should be incorporated on the Cholmondeley Sales."* JM-114
>
> *"The Tongass was included in the Roadless Proposal because the [overwhelming] majority of Americans, INCLUDING SOUTHEAST RESIDENTS, favor roadless protection on their magnificent homeland."* UL-87
>
> *"Although areas within the Cholmondeley project area are "Roadless", the Roadless Policy clearly stated that all Tongass timber sales with a DEIS published prior to the finalized Roadless Policy would go forward. Further, the roadless rule has not yet been implemented and should not affect this decision."* DW-105
>
> *"Areas designated Timber Production and Modified Landscape in the recently revised Tongass Land Management Plan should be used to the maximum extent possible for timber sales. The Cholmondeley area has land use designations that allow timber harvest. .....Only through this harvesting will it be possible for value added manufacturing facilities in Ketchikan and in other parts of Southeast Alaska to obtain timber needed to create economically viable businesses. Even though certain areas within the Cholmondeley project are designated as roadless, the Roadless policy stated that all Tongass timber sales with a DEIS published before the final Roadless Policy would be carried out."* JVD-126

Response: As stated in the Roadless Rule, the agency considered the alternatives of exempting and not exempting the Tongass National Forest from the Roadless Rule. Social and economic considerations were key factors in analyzing those alternatives, along with the unique and sensitive ecological character of the Tongass National Forest, the abundance of roadless areas where road construction and reconstruction are limited, and the high degree of ecological health. The Roadless Rule provides that the prohibitions do not apply to road construction, reconstruction, and the cutting, sale or removal of timber from inventoried roadless areas on the Tongass where a notice of availability for a draft environmental impact statement has been published in the *Federal Register* prior to the date of publication of the final rule, which occurred on January 12, 2001. The Cholmondeley project is in this category, as the notice of availability of the Draft EIS was published on December 29, 2000. Roadless areas on the Tongass have received extensive analysis as the result of a federal court ruling. The recently released Tongass Supplemental Enviromental Impact Statement (SEIS) updated the Forest Inventory and took a hard look at whether these areas should be considered for Wilderness designation. The Cholmondeley analysis was based on the inventory completed for thie SEIS.

2. Forest Plan Issues

a. Land Use Designations

The Land Use Designations (LUDs) for the project area were also a common concern, expressed in many ways:

> *"I believe that the Forest Service should make maximum utilization of timber sale opportunities in areas of the Tongass that are designated Timber Production and Modified landscape....."* DW-105
>
> *"We urge the U.S. Forest Service to fully utilize all of the (very limited) timber sale opportunities that remain in the Tongass National Forest that are designated "Timber Production and Modified Landscape" by the revised Tongass Land Management Plan. The Cholmondeley area is one of the very limited areas that remain in land use designations allowing timber harvest."* AMA-137
>
> *"...the Cholmondeley area is unique in that it remains in land use designations allowing timber harvest and management for future rotations of timber. The NEPA process should not be used to further erode the raw material supply required to meet market demand. The final decision should provide the maximum allowable timber sale quantity from this area."* CAC-106
>
> *"Leave the Cholmondeley area the way it is – wild."* JK-73
>
> *"Please manage this valuable watershed as a natural area."* LS-100
>
> *"Logging and roads in the roadless area would be incompatible with current or future most-beneficial multiple use of the area."* WES-61

Response: A primary goal of the Tongass Forest Plan is to provide for the sustainability of the resources of the Tongass National Forest, while directing the coordination of multiple uses, such as outdoor recreation, timber, wildlife, fish, watershed, and wilderness. To accomplish this goal, the revised 1997 Forest Plan includes a wide range of land allocations spanning from areas that essentially allow no land-disturbing activities to areas allowing intensive resource development, and a set of standards and guidelines that ensure management objectives for these land allocations are met. The Cholmondeley project area is allocated to various LUDs, some that allow development (approximately 50%) and some that do not (Final EIS, 1-7). Most of the project area has had a development LUD since the original Forest Plan (1979), though very little timber harvest has taken place within the project area. Approximately 100 acres of second growth exist on national forest land within the project area. Scattered individual tree selection has also occurred in the past. The Cholmondeley project is consistent with the 1997 Tongass Land and Resources Management Plan.

3. Purpose and Need

Many comments questioned the need to harvest timber from this project area at this time:

"As large as the Tongass is there surely must be other areas to consider that do not have small communities and lodges located within. It becomes clear to me that the Forest Service is not listening to what all of us here in Saltery Cove have to say. The tall timber you propose to cut is shelter for game that we use for our meat supply!" JL-29

"Areas designated Timber Production and Modified Landscape in the recently revised Tongass Land Management Plan should be used to the maximum extent possible for timber sales. The Cholmondeley area has land use designations that allow timber harvest." JVD-126

"The rationale in appendix A for scheduling the Cholmondeley project area at this time is properly set forth. Particularly important is the citation on page 2 from the Organic Act of 1897 emphasizing the agency's responsibility to 'furnish a continuous supply of timber for the use and necessities of the citizens of the Unites States'." AFA-157

"This sale is unnecessary. The logging industry has hundreds of millions of board feet of timber under contract and yet to be cut. Large sales are no longer needed, with the large pulp mills closed and the veneer venture in Ketchikan having problems due to risky business practices. The Forest Service should focus on small sales off the existing road system." DLS-54

"It is very important for economic opportunity and employment in Southeast Alaska that the Forest Service timber sale program proceeds as scheduled. The forest products industry has been significantly hampered due to past Forest Service actions that have reduced the supply of timber for sale to record low levels." SC-63

Response: The Cholmondeley project is a timber sale project, and was proposed to respond to the goals and objectives identified by the Forest Plan for the timber resource and to help move the project area towards the desired future condition identified by the Forest Plan for the lands within the timber production and modified landscape LUDs. Cholmondeley and several other sales have been set back to 2005 on the 10-year plan because of the Forest Plan Supplemental EIS. An orderly progression of timber sale planning is needed to maintain the pipeline of timber to be offered. Appendix A describes in detail the market demand, the documents and laws that direct that direct that process, steps of the sale process (pipeline), how timber sale projects are located and how the 10-year plan implements the process.

a. Alternatives

Many comments voiced strong support for one alternative over another. Some people expressed a concern that the no-action alternative was the most appropriate for the project area. Some felt that if the no-action was not the selected alternative, then an alternative that relied heavily on helicopter yarding was the next best option. Still others felt an alternative that maximized timber harvest with a minimum of helicopter yarding should be selected. Some expressed concern that alternatives 2 and 3 were designed to be so uneconomical that they were not valid alternatives. Some comments expressed concern that eliminated alternatives were not adequately addressed. Others felt the community alternative was changed:

> *"Since for the most part, the DEIS attributes excessive helicopter yarding distances as the reason for the substantially deficit nature of Alternative 2, a more economically viable helicopter-only alternative which harvests only those units within 1.5 miles of saltwater should be developed. Such an alternative would result in an overall project volume of approximately 22.3 MMBF. It would delete the following units from the Alternative 2 unit pool: 614-034b (2.276 MBF), 614-005 (567 MBF), 675-037 (1,103 MBF), 675-033 (3,786 MBF), 616-016 (648 MBF), 616-013 (1,240 MBF), 616-021 (932 MBF), and 616-275 (1,917 MBF). Unit 616-010 (396 MBF) should also be deleted to avoid impacts to the continued viability of the Clover Bay Lodge. This deleted volume totals approximately 12.9 MMBF. The volume from the remaining units should be flown directly to barges to avoid the bark loss and deposition associated with inwater log transfer and rafting. In addition, the harvest prescriptions that are proposed for alternative 3 should be implemented for Units 614-001a, -001b, -002, and –034a in the Saltery Cove watershed."* AK-DGC-103

> *"This alternative [Alternative 2] would best mitigate the overall concerns of the residents and lodge owners in the project area, and would still provide an ample timber sale volume. In addition, since no roads or LTFs would be constructed, it would provide the best assurance that water quality and fish habitat will be protected. Therefore, the department strongly recommends that it be developed and selected for the Record of Decision for this project."* AK-DGC-103

"Despite the inclusion of two apparently responsive alternatives and mitigation measures, the selection of the preferred alternative appears to disregard the concerns raised by residents of the three communities in the project area. Alternatives 2 or 3 would address the significant concerns raised by residents regarding maintaining the quality of their drinking water, but are dismissed by the FS because their analysis indicates that timber harvest under these alternatives would not be economically viable. ADF&G shares the concerns of the Alaska Department of Environmental Conservation (ADEC) regarding road-building and water quality issues in these communities and urges the FS to examine additional alternatives that include more judicious selection of helicopter-yarded units to address economic issues." AK-DGC-103

"At this time the [Juneau Group Sierra Club, Forest Conservation Council and National Forest Protection Alliance] support the No-Action alternative, Alternative 1. No other alternative presents the opportunity to preserve the forests, wildlife, scenic views, subsistence economy, marine ecosystems and their associated sustainable economies on Prince of Wales Island and in the project area." FCC-141

"We are concerned that there appears to be a lack of reasonable alternatives for the decisionmaker to choose from. Alternatives 4 and 5 would appear to violate WQSs and not comply with DWRs. The EIS characterizes Alternatives 2 and 3 as economically unviable. NEPA requires that an EIS include a full range of reasonable alternatives and denotes the importance of this by characterizing the alternatives section as the heart of the EIS (40 CFR 1502.14). If possible, we recommend that the Forest Service modify Alternatives 4 and 5 to meet WQSs and to comply with DWRs with implementation and Alternatives 2 and 3 to make these alternatives more economically viable. For example, the Forest Service could remove outlying units in Alternative 2 or change the alignment of the proposed road in the Sunny Cove watershed for Alternative 3 to reduce the distance that helicopters would need to transport logs." EPA-167

"Alternative2 proposes to harvest all potential units in the project area by helicopter, with no road construction. This alternative responds to concerns expressed for the roadless character of the area, security of the residences and lodges, domestic water quality, wind patterns following logging, and visual impacts. We share concerns for many of these issues and view helicopter logging as an effective method for reducing environmental impacts associated with timber harvest. Additional benefits include potential reduction in overall fuel consumption to the extent that helicopters can avoid the need for road construction (4,000 gallons of fuel per mile), road maintenance, ground-based yarding, hauling, and dumping. By reducing the amount of fuel required as well as fuel handling and storage, the risk of spills and resulting environmental injury is also reduced." USDI-97

"We believe an alternate needs to be developed that would realize the substantial environmental benefits of the helicopter logging as an alternative to ground-based logging by selecting units with the highest value wood and the shortest flight distances, perhaps with modification of some units to improve feasibility for helicopter logging. By eliminating the longer flight distances, it seems likely that overall fuel efficiency .....could also be significantly reduced. We believe it is important that the FEIS include and evaluate such an alternative." USDI-97

"I urge you to select the only alternative that promises to offer economic gain for the region while at the same time protecting the integrity of my Tongass National Forestland. I urge you to select the No Action alternative." DA-65

"NEPA requires that the Forest Service consider a reasonable range of alternatives for this proposed timber sale. See 40 C.F.R. § 1502.14(a). Four action alternatives were proposed to meet the stated purpose and need for this project. Alternatives 2 and 3, the two alternatives that rely extensively on helicopter yarding, are unreasonable because they are not economically viable and therefore do not meet the purpose and need for the project. Given the agency's clear intent to highgrade the most valuable timber stands from this project area in the first entry, the agency's reliance on these "straw" alternatives

violates NEPA because it constrains the decision-maker's into selecting either Alternative 4 or 5." SEACC-158

"In my judgment the only viable alternative to the preferred Alternative No. 1, no logging, would be No. 3, helicopter logging. The possibility of creating a log dump site in Clover Bay should not even be a consideration!" G-10

"I prefer alternative #5 with the following changes. Harvest Method relies heavily on helicopter use which is basically not economical in the domestic market. The road building could be increased minimally; unit harvest size increased and distance between units shortened, which would collectively greatly reduce the helicopter usage. More of this sale needs to be logged conventionally!" MB-3

"Alternative 5.....provides the largest amount of volume while maintaining all other amenities, including indicator species, at a continued high level. The industry needs this sale and all sales in the pipeline to provide employment while still meeting other amenity needs." RPH-SC-63

Response: Alternatives were developed to analyze specific issues. For example, Alternative 2 analyzed the roadless issue and Alternative 3 addressed many community concerns. The economics analyzed in Alternatives 2 and 3 were used to display and compare the costs of helicopter logging to the cable systems proposed in Alternatives 4 and 5, both across alternatives and across offering areas. Offering areas could then be prioritized. Alternative 6 was then developed to analyze the economics of the Island Point LTF, compared to the Clover Bay LTF. Alternative 7 was developed to better depict the interagency biological team's old-growth reserve recommendations in an effort to better meet Forest Plan recommendations, particularly for the medium old-growth reserve.

Meetings with the publics in the three separate areas resulted in Alternative 3, the community alternative. The issues raised by the two communities and the floating lodge were incorporated into and analyzed in that alternative. It was not changed. The main characteristics of the community alternative were helicopter yarding, road closures, alternative silvicultural systems and particular LTF locations. Issues were only slightly different between the three areas. Alternatives dropped included separate alternatives that addressed the issues of only one community and area per alternative. These would have, in essence, pitted one community against the others and we felt that was not appropriate.

The decision maker will display in the ROD a mix of alternatives which possess the best combination of effects, taking into account public comments.

The financial efficiency section under Issue 4 in Chapter 3 of the Final EIS, quoted below, shows lists of units that could be dropped in the ROD to better enhance economics. The intent was to NEPA-clear units and then let future markets determine if they would be included in a sale package. All sales are made up of a mix of better and worse economic units. These units, for the most part, may not stand on their own merit economically unless they were part of a larger sale.

"Units 674-537, -538, -549, -551, -581, and 615-025 may be uneconomical to harvest in low-market conditions. These units require helicopter yarding to prevent damage to the residual stand and meet resource objectives. The area north of Monie Lake, Units 616-018, -019, -022, -023, and –024, may be uneconomical because the units require long roads to reach them and contain relatively low volume per acre. Using helicopters to yard logs becomes very expensive if the average yarding distance (AYD) is near or exceeds 8,800 feet. Depending on the alternative, Units 614- 002, -005, -034a, and -034b; 616-013, -016, -021, and –275; 675-030, -033, and –037; and 676-462, -472, -484, and -500 would be at risk for this reason. See Table 3-9 for the breakdown of helicopter units by cost category".

4. Saltery Cove Issues

a. Domestic Water

Many of the local residents as well as the State of Alaska Department of Environmental Conservation (ADEC) and the US Environmental Protection Agency (EPA) expressed concern regarding the impacts of timber harvest and road construction on domestic water sources. Some concerns focused on water use, turbidity and pollution, monitoring, capping of intakes, streamflow, and written agreements as indicated by the following comments:

i. Water Use

"Both turbidity and disinfection violations require public notice for cause, associated health risks, and violation resolution. Currently the Sportsman's Cove Lodge is in compliance with state standards. Non-compliance as a result of upstream Forest Service activities would trigger state enforcement action against the Forest Service. In addition, if Sportsman's Cove Lodge is forced to modify its public water system due to persistent elevated levels of turbidity, such a modification would be costly, time-consuming, and would disrupt lodge operations, causing substantial economic impact to the owners. Consequently, it is imperative that impacts to water quality be prevented." AK-DGC-103

"My water comes from a small stream that is fed by the wetlands that you intend to build roads on and log through. If you divert water that would go into my stream then there would be less or no water. How can you expect us to live on our land when you have destroyed the water?" MO-75

"2190000 Road in the Saltery Cove Watershed. As indicated in the DEIS (page 3-4), this road crosses two streams that are used 'for domestic water by several yearlong and seasonal residents in Saltery cove. Sportsman's Cove Lodge operates a class B (greater than 25 people) public water system. Class B public water systems are required to have filtration and treatment systems. The private water systems are not required to have filtration of treatment.' As such, the Sportsman's Cove Lodge falls under the Source Water Protection Requirements [18 AAC 80.015] of the Alaska Drinking Water Regulations, and the private water systems fall under the Alaska Water Quality Standards, specifically the Antidegradation Policy [18 AAC 70.015] and the standard for water supply – drinking, culinary and food processing [18 AAC 70.020(b)(1)(A)(i)]." AK-DGC-103

"The source water protection requirements that a person may not cause pollution or contamination to enter a public water system or create or maintain a condition that has a significant potential to cause or allow the pollution or contamination of a public water system." AK-DGC-103

Response: In order to avoid potential pollution in public water supply source areas, several mitigation measures are available in many combinations. 1) Moving the public water supply intake upstream of the road crossing, 2) not constructing any roads in the public water supply source area, 3) stringent mitigation measures (see Appendix G of the Final EIS), and 4) a compliance monitoring plan, (see Chapter 2 of the Final EIS) for road crossings upstream of private water supplies provide a reasonable assurance that state water quality standards will be met. These extra measures are in addition to the use of Best management Practices (BMPs), which are approved in conjunction with other agencies, that assure water quality as they were designed.

ii. Turbidity/Pollution

"Both Alternatives 4 and 5 of those listed in the DEIS are inconsistent with the ACMP and with TLMP Soil and Water Standard and Guideline S&W 112.A. If implemented, they would create conditions that are in violation of both the Alaska Water Quality Standards and the Alaska Drinking Water Regulations, particularly the Source Water Protection Requirements. The inconsistent elements of these alternatives are: a.) the proposed 2190000 Road and its crossings of two domestic water source streams in the Saltery Cove watershed, b.) the use of culverts on the four streams that are crossed by the 2170000 Road in the Drinking Water Creek watershed at Sunny Cove, and c) Harvest on Slopes Greater than 72 Percent." AK-DGC-103

"These elements make these Alternatives inconsistent with several standards of the ACMP found in the Forest Practices Act and Regulations. Specifically, AS 41.17.060(b)(5) and (c)(5) state, respectively, 'significant adverse effects of erosion and mass wasting on water quality and fish habitat shall be prevented or minimized' and 'there may not be significant impairment of the productivity of the land and water with respect to renewable resource.' *In addition, 11 AAC 95.185(b) states that* 'For all lands, the operations recognized under this chapter shall be conducted in a manner that does not cause or constitute a substantial factor in causing a degradation of water quality.' (*emphasis added*)" AK-DGC-103

"Given the physical features at the crossing site, it is very likely that the road would not only deliver sediment to the stream during construction and use, but also, would continue to be a chronic (long-term) producer of sediment even after it is closed. Also in addition to the sediment, hydrocarbons and petrochemicals from the construction equipment and log trucks would likely be delivered to the stream, compounding the threat to human health and the public and private water systems, which are incapable of treating water to remove such contaminants." AK-DGC-103

"A number of sources indicate that Alternatives 4 and 5 which involve the installation of two stringer bridges and subsequent hauling of rock and logs over roads half a mile upstream of drinking water intakes in the Saltery Cove watershed would result in violations of Alaska WQSs, would not comply with DWRs, and would pose public health risks. The Floodplains, Soil and Wetlands Resources Report from the project's administrative record states that "if Alternatives 4 or 5 are implemented it is likely that fine sediment will enter the domestic water stream in unit 614-001B during culvert installation and rock and log hauling during wet weather." The Alaska WQS for turbidity is 5 NTUs over natural conditions and the Alaska WQS for sediment is no measurable increase in concentration of settleable solids. Discussion with Forest Service staff indicate that Alternatives 4 and 5 would, at times, likely produce turbidity in excess of 5 NTUs (i.e., exceed the WQS for turbidity) if mitigation measures, in addition to those described in the EIS, were implemented. Alaska Department of Environmental Conservation (ADEC) comments on the draft EIS state that Alternatives 4 and 5, as described in the EIS, are inconsistent with Alaska WQSs (18 AAC 70) and DWRs (18 AAC 80), and consequently are inconsistent with Alaska Coastal Management Program and the Tongass Land Management Plan Standard and Guideline S&W112.A. The EIS should explicitly state whether proposed alternatives would meet Alaska WQSs and DWRs and should contain analyses to support these conclusions." EPA-167

"Shovel logging will really tear up the land and could divert water or put a tremendous amount of turbidity into our water. Mike Dombeck, U.S. Forest Service Director, says 'Watershed health will be the overriding priority in all forest plan revisions.' So get out of our watersheds!" MO-75

"A road through our watershed and cable logging in it is bound to affect our drinking water. The road will act as a dam and interrupt the natural drainage we need for full catchment. Trees dragged through or left in the small feeder streams will divert and destroy true catchment. If a truck drops a transmission

in the area it's oil will seep into our water. If the drainage is altered we could possible be without water in the dry months of summer and the really cold months of winter. These streams currently provide good water year round." DLW-31

Response: The mitigation measures mentioned under Water Use can also be applied under Turbidity/Pollution. These mitigation measures are above and beyond the mitigation that would be used on a similar road outside a domestic water supply watershed (ie, BMPs designed with interagency consultation.. The Forest Service does not expect residents of Saltery Cove to monitor water quality impacts associated with the Cholmondeley Timber Sale. Additional information is included in an addendum to the Floodplains, Soils, and Wetlands Resources Report.

In addition, an erosion control plan containing an exceptionally high standard level of mitigation in the vicinity of the 2190000 stream crossing has been established to ensure BMP implementation will achieve state water quality criteria for drinking water (Cholmondeley Final EIS, Appendix G). Conscientious inspection during plan reviews, road construction, road maintenance, and road storage activities, together with turbidity monitoring, will ensure that corrective actions are applied if necessary.

The analysis completed shows that there will not be significant adverse effects from erosion and mass wasting on water quality (Chapter 3 of the Final EIS). As described in the Floodplains, Soils and Wetlands Resources Report for the Cholmondeley Project Area, Region 10 of the Forest Service has adopted Soil Quality Standards that place numeric limits on the amount of soil disturbance allowed in harvest units. The standards include mass wasting as a detrimental impact to the soils resource. Past monitoring of the Soil Quality Standards and monitoring of mass wasting provides every indication that Soil Quality Standards can be met and Soil Productivity maintained. (See the Floodplains, Soils and Wetlands Resources Report for the Cholmondeley Project Area, available in the project record and sumarized in chapter 3 of the Final EIS.)

Down trees will not be left in small feeder streams. Buffer widths have been increased to protect water quality. Streams within the units have no cut buffers. Fuel storage, refueling, and maintenance (when possible), will occur outside of the watershed. If a truck drops a transmission in the area near a stream, it will likely impact the stream. Precautionary measures are specified in the mitigation measures listed in Chapter 2 and Appendix C of the Final EIS and in the BMPs listed on the unit cards. The timber sale contract will contain clause CT6.341 to address prevention of oil spills. The proposed timber sale and road system is not anticipated to result in altered drainage or significant changes in water yield. The Final EIS and soils report now have addendums that have a mitigation plan incorporated as well as a discussion on water yield.

iii. Monitoring

"USFS needs to explain to us why we, who are untrained, should have to monitor our water and how do they expect us to do this? We aren't trained or qualified water experts. Our first clue will be when it comes through our taps. Much too late by then. Our contention is that there should be no contaminates added to our water. The simple way to avoid this is not to build a road through or cable log in the community's watershed. It is outrageous for the USFS to set up a potentially dangerous condition and then ask us to be responsible for it. What are we going to do in the meantime? Will the USFS provide us with potable water?" DLW-31

Response: The Forest Service does not expect private landowners to monitor water quality impacts associated with the Cholmondeley Timber Sale. The monitoring plan has been revised and will be implemented by the Forest Service as a way to monitor the effects of its management actions and will be used to modify construction or haul activities as appropriate to provide a reasonable assurance that state water quality standards are met. See the monitoring plan in Chapter 2 and the erosion control plan in Appendix G of the Final EIS.

iv. Capping

"It was also stated [in the Feb. 6, 2001 meeting between USFS and Saltery Cove residents] that capping off the intakes as a mitigation measure should not be in the DEIS." DLW-96

Response: The Forest Service does not anticipate any need to cap water intakes. If the need arises, the Forest Service will consult with downstream users.

v. Streamflow

"We recommend that the EIS also discuss the impacts of harvest activities to the hydrograph and timing of flows in watersheds that serve as drinking water sources. We are concerned that harvesting could result in a faster hydrologic response and consequently greater overland flow, less storage (perhaps with more frequent periods of low or no flows), and a greater potential of erosion." EPA-167

"First the soil and vegetation will be stripped (so long natural filtration and drainage) and then shot rock will be back hauled in to build the road. This will create a dam across the natural drainage and allow the water to pass the road by bridge or culvert only. When it rains all the contaminants, fuel, rock dust from the road, and any other man made garbage, that have collected in the ditches will wash down and hit the streams at one time. There goes our water. We repeat, there is no way you can build a road through that watershed and not damage our water supply." DLW-96

"A road through our watershed and cable logging in it is bound to affect our drinking water. The road will act as a dam and interrupt the natural drainage we need for full catchment." DLW-31

Response: The Final EIS and Addendum to the Floodplain, soils and Wetlands Resource Report for the Cholmondeley Project Area provides a discussion of potential changes to streamflow. We do not anticipate any changes to streamflow based on the best available literature.

Because of the gentle slopes in the watershed, much of the road construction will be rock overlay. Rock overlay construction in a muskeg setting does not involve much clearing and grubbing. The permeability of shot rock roads in a wetland setting is beginning to be studied in southeast Alaska. One study discussed in the Draft EIS found the effects of the road on soil drainage were limited to within approximately 50 feet of the road. A second, more recent study on a sloping forested wetland site (McGee, 2000 master's thesis), found similar results. The preventative mitigation and application of BMPs on the 219000 road was designed with site conditions in mind.

The road system is not anticipated to act as a dam as suggested. Road cut slopes can intercept subsurface flow. This flow would then be captured by the drainage system built into the road (culverts and inside ditches) and returned downslope. The road crossings at these locations will be log stringer bridges and there are no cutslopes near the crossings. Large buffers are left on the stream in the west end of unit 614-001a. A smaller buffer is left on the smaller stream in the east end of the 614-001a. Soil disturbance outside the buffers is expected to be minimal. Diversion of waters out of or into the watershed used for drinking water is unlikely.

vi. Written Agreements

".....in the Soil and Water Standards and Guidelines, forest managers are required under 18 AAC 80.520(c)(3) and 36 CFR 251.9 to enter into agreements with operators of public water systems in unincorporated communities. No such agreement has been proposed to the owners of Sportsman's Cove Lodge, nor are we likely to enter into any agreement that would in any way jeopardize our very critical water supply. It is our lifeblood." LGM-122

Response: No roads will be constructed upstream of public water supply intakes for the Sportsman's Cove Lodge. This will be accomplished by either 1) moving the public water supply intake upstream of the road crossing, or 2) not constructing any roads in the public water supply source area.

b. Scenic Quality

Many people expressed concern for impacts to the scenic beauty of the area and the impacts harvest and road building would have on the experience and the viability of the local lodge business:

> *"The statement is untrue in that a 40' wide road built for several miles will reduce the roadless area by only 4.8 acres per mile of road. Yet the scar, particularly for the full bench construction required on the slopes around McKenzie Inlet and Saltery Cove, will affect the entire visual landscape, vertical and horizontal, not just for the full length of the road, but for as far away as it can be seen, encompassing thousands of acres!"* LGM-122

> *"Also, scenery enhances the fishing. Our guests do not pay thousands of dollars to just have a fish dangling on their line. It is the total 'Alaska Experience' that brings them here. The scenery and the feeling that they are in the wilderness is all part of the 'package'."* BM-115

> *"Scenic Quality: I'm not going to address this as it speaks for itself. You cut the trees and you change our environment. This is not a good change."* MO-75

> *"There are viewsheds and the quiet ambience that will be compromised by the proposed roads."* MS-101

Response: Units in all alternatives including the units above Swan Lake and units 614-001 a and b are being designed to meet a visual objective one or more levels higher than the Forest Plan Visual Quality Objective (VQO) of Maximum Modification. Unit 614-001 a/b in the selected alternative has been designed with very wide buffers on either side of the stream that runs through the middle of 614-001 a/b unit. (250-foot no-cut buffer on either side of the stream and a 250 ft. 50 percent retention zone on either side of the no cut buffer for a total of a 1000 ft. wide area of virtually little or no evident harvest). On either side of this will be strips of 50 percent retention along the upper portion of the unit above some cliffs. The rest of the unit will be harvested with a 25 percent retention prescription (similar to prescription for the Sentinel units in McKenzie Inlet). See the harvest simulation figures in Chapter 3 of the Final EIS for projected views.

It is true that the impacts from the units behind Saltery Cove will be greater from a plane because there is not the screening effect from intervening landforms and vegetation that there is at ground level. However, the larger buffers and other retention zones and the residual "structure" left in other portions of these units will even soften the impact from an airplane to a degree. The amount of retention in units 614-001a and b will be significantly more than in the recently harvested Sentinel units in McKenzie Inlet.

Every effort will be made to mitigate the effects of this development. The road will be designed to be a full bench cut whereby all rock blasted will be end-hauled (i.e. not sidecast) over the downhill side of the road. In addition, after logging, the entire floor of the pit and any disturbed areas along the shore will be covered with mineral soil and revegetated with native plant materials such as alder and spruce seedlings.

c. Lodge Business

A number of people were very concerned about the impact the proposed project could have on Sportsman's Cove Lodge in Saltery Cove. The owners of the lodge, as well as many of their clients, felt the economic benefits of the existing business were not adequately displayed in the EIS. They also felt the impacts of timber harvest on their business were not fully and accurately disclosed.

"Further, the Cholmondeley Project Area currently supports a strong and sustainable, ecotourism economy that will be impacted, perhaps irretrievably, by the activities proposed in the DEIS. The owners of several lodges have expressed that there will be significant impacts to their business and in one case, possible closure." FCC-141

"Again, the visual impacts of the proposed harvest will have a serious effect on our ability to market the lodge. Our guests want to vacation in an area which they believe to be remote wilderness. Clearcut logging all around the lodge, at the lake, and the LTF in McKenzie will cause some to vacation in a different area. Depending on how much it will cost us to fill those vacancies, we may not be able to remain in business." BM-115

"What appears to be poorly understood, and is not mentioned anywhere in the discussion of the Lodge business, is the fact that our product is very highly perishable. Unlike a tree, which can be harvested at any time over a certain period of years, our product perishes the instant one of our boats leaves the dock with a vacancy unfilled, never to be sold (harvested) again." LGM-122

Response: We have included many practices and mitigation measures in addition to standards and guides, to lessen the "risk" to the existing jobs. We have considered visuals, effects on fisheries habitat and populations, noise, length of operating seasons, yarding methods, yarding timing restrictions, and barging and rafting methods. All could have effects on clients and ultimately recreation jobs. Some specific mitigation for visual impact reduction include partial cuts with reserve tree retention, extensive stream and beach buffers, unit boundary adjustments, and operating period restrictions.

Three percent of the entire project area is planned for harvest. Four percent of the Saltery Creek Watershed is planned for harvest. A comparable percent is anticipated for the viewshed of the area. More extensive private harvest existing in the middleground to the north and west of Saltery Cove has not seemed to have had impacts on guests' "wilderness experiences." The harvest proposed for the Cholmondeley project will have much less impact than past private harvest. See the scenery and lodge business section under Chapter 3, Issue 1 of the Final EIS for more details.We could only estimate what relative risks to employment may be occurring.

The LTF will have significant impacts from viewpoints at the mouth of McKenzie Inlet due to the rock pit and the ramp at the shoreline, the rock cuts created by the road accessing the pit, and the collection of various equipment at the site. A closer review of the site has indicated that the access road will cross a series of benches that will break up the visibility of the road from the water and result in a series of exposed rock cuts above the road. Hence this overall development, while clearly visible from distant background viewing positions on the opposite side of Skowl Arm, may not totally dominate the view from these positions.

The length of time that logging equipment would be present, in the selected alternative, is two to six months (see chart in Chapter 3, Issue 1, Lodge Business section). Logging is part of the Alaska experience, as evidenced by extensive past private harvesting in the northern viewshed of Saltery Cove. Logging equipment noise will coincide somewhat with times when boats will be a distance out in saltwater. Evenings will be relatively equipment noise-free for boat tours.

A seasonal workforce is characteristic in all phases of the Alaskan workforce. People come up from "down south" to work seasonally in logging as well as in the recreation and fishing industries. In the same way, it would not be productive to compare the ripple-down effect of monies as they pass through the local economies, because that occurs in recreation and logging.. See the "Lodge Business" section under Chapter 3, Issue 1 for more of the analysis.

Other comments have mentioned the economic diversity of the lodge industry. One of the goals of the Forest Plan is promotion of local economic diversity. This diversity includes logging as well as recreation as a significant part of local and regional economy. Not providing pipeline volume from where the Forest Plan calls for it could also have an effect on the local economy.

New business opportunities in the aera of recreation and tourism would be available as roads are available for foot travel.

No studies were found after extensive searching that were conducted in Southeast Alaska regarding the effects of harvest activities on the economics of fishing lodges. However, we conducted an informal survey in which we interviewed several lodges that have timber harvest in their facility viewshed or where clients' activities occur. They responded generally by saying they feel harvest has not had an impact on the economics of their lodge business. Several other lodges were not contacted but they are in business and have timber harvest in their vicinity. See the Appendix of the Socio-Economic Report in the Final EIS.

d. Community Privacy/Security

Several people were concerned that roads would attract additional people to the area, which could lead to vandalism to private property, hunters shooting near homes, and less privacy.

> *"It appears evident by the lack of discussion throughout the draft, that neither the agency or the industry shares or appreciates the very serious angst our tiny communities have over a road that comes within a third of a mile of the back of our properties, not to mention the injection of temporary industrial communities several times the size of our own into this very open and vulnerable society."* LGM-122

> *"It would be nothing to have a hunter in my back yard after gaining access to the area from the proposed road. I hike the woods behind our property almost daily with my dog and would hate to think I was in the woods at the same time as a hunter. There would be no way to know in advance that a hunter would be there or that he would know I was in the woods. Stray bullets could be scary. The road is too close – eliminate the road!"* MO-75

> *"Also no roads means less chance of vandalism to our private homes which does occur near most logging activities. I know, I've been a victim of it."* DO-80

> *"The DEIS proposes building up to 26 miles of new roads. Though none of the proposed roads would directly connect with the Prince of Wales road system, several road sections will be built within ½ mile of existing roads. All proposed roads would also be accessible by boat. Residents of both Sunny Cove and Saltery Cove are very concerned about increased access to their communities that roads will bring. The DEIS does not address how the Forest Service will prevent non-motorized access to homes and local resources, enforce motorized access restrictions and access violations, or how the agency proposes to exclude traffic from roads during the project operating years, or prevent workers from competing with resident users for area deer and other resources. In addition, the roads from Clover Bay will be open to motorized vehicles, effectively opening the sale area and exposing residents to outside competition and harassment."* SEACC-158

Response: Additional analysis has been completed to address security risks and is summarized in Chapter 3 of the Final EIS. The national forest is a system that is open to the public at all times. This fact makes it nearly impossible to guarantee protection to private homes adjacent to its borders. A certain element of risk is associated with remote living as well a city dwelling. Forest users are usually the "eyes and ears" to let law enforcement know of any violations of forest laws (road closures). They will assist our normal patrols by law enforcement.

No roads currently exist within the project area. Proposed roads will not be connected to any existing roads. All roads will be closed to vehicular traffic after salvage and silvicultural activities are concluded. A hunter from Ketchikan would have to travel by boat 20 miles, hike several miles down a closed road which, in a few years, will be alder-covered, randomly aim at a house in Saltery Cove a quarter mile away to put someone in danger, or walk the extra quarter mile to vandalize someone. The risk of this occurring is slight. Additional road use restrictions during timber harvest and road construction can be incorporated into the timber sale contract to

increase public safety and address concerns of competition for subsistence resources. The IDT consulted with Forest Service law enforcement regarding which regulations apply to security concerns. Under 36 CFR 261.10, which applies to all NFS lands, the following are prohibited: (d) Discharging a firearm or any other implement capable of taking human life, causing injury, or damaging property as follows:

(1) In or within 150 yeards of a residence, building, campsite, developed recreation site or occurpied area, or

(2) Across or on a National Forest System road or a body of water adjacent thereto, or in any manner or place whereby any person or property is exposed to injury or damage as a result in such discharge.

e. Wind Patterns

Several people expressed concerns that timber harvest could reduce the amount of protection currently provided in local anchorages, or that timber harvest could change local wind patterns.

> *"Some of the other concerns that were listed but are not fully addressed in the DEIS are...changes in wind patterns and velocity..." DLW-84*

> *"Since our cabin was built in 1976, we have had no trees blow down on our property. However, as the area behind us is opened and wind patterns change, we fear that there could be problems with trees being uprooted on our property. We have large trees that surround our home and would hate to think that a tree could come down on us. We also worry about wind patterns that could develop that would make it harder to keep our float and skiff anchored in front of our home. With Sealaska getting lands across the cove and the University of Alaska wanting the strip of land directly behind our property ..... that could be logged or developed, windthrow from U.s. Forest Service logging could have more impact than anticipated."* MO-75

> *"Our prevailing winds blow mostly southeast to southwest which is directly down the gorge that contains units 614-002, 614-009a, 614-034b and 614-005. These units are located at the bottom of a steep gorge that already acts as a funnel for the wind. Our float is located at the head of the cove and in strong winds we take water over the back side of the float and actually have water spouts and wind blown spray. This is with the forest as it stands now acting as a partial windbreak. The forested lands the DEIS offers for buffer have been conveyed to the state and Sealaska Corp. The USFS has no control of them. In fact as stated in DEIS on pages 3-53, 3-59, and 3-77 the expectation of the USFS is that these lands will be logged. That leaves this community setting on the edge of a huge clear cut that extends in all directions with zero buffer from winds."* DLW-84

Response: As any tree matures and becomes decadent, there is a danger that it will fall down at anytime. Wind events are unpredictable. The normal disturbance pattern on the Tongass is gaps in the canopy due to individual or small groups of trees blowing down. In the units above Saltery Cove, we are leaving larger buffers than required by the Forest Plan (special drinking water protection) that will also provide additional wind protection.

There is a substantial distance between the units and the cove. There also are about 25 acres of scrub timber on national forest land to the southeast and southwest of the private lands. This area, along with large Forest Service stream buffers and structure retention prescribed in the silvicultural prescriptions, will help shield the cove from winds.

It is hard to predict what other owners will do with their lands. However, the State of Alaska Forest Practices Act has provisions for stream buffers and beach buffers depending on the land classification and according to the local area plans. See the wind section under Issue 1. See the discussion of the Saltery Cove Old Growth Reserve. The

reference to the likelihood of harvest on conveyed lands refers to the areas northeast of Swan lake. It is unlikely harvest would occur immediately behind the existing residence.

f. Log Transfer Facility

A number of people were concerned about the impact that a Log Transfer Facility in McKenzie Inlet (near Saltery Cove) could have on wildlife resources, marine water quality, commercial, sport and subsistence fishing, scenic views and the lodge businesses in the project area.

> *"Modifications should also be made to cause fewer impacts to aquatic life, the benthic environment, and wildlife habitat (40 CFR 1500.2(e)). .....We recommend that the EIS also substitute using low-angle ramp systems (which the EIS incorrectly characterizes as having the least resource impacts) with the use of low-profile, temporarily placed shot rock barge bulkheads, such as that being proposed for the Threemile Arm Log Transfer Facility (LTF) on Kuiu Island. The low-profile, temporarily placed shot rock barge bulkhead design would not only impact fewer resources and be comparable in price to the low-angle ramp system, the LTF's ability to be removed would better address the community privacy and security objective found in the project's purpose and need statement."* EPA-167

> *"The McKenzie Inlet LTF is located in one of my traditional and best producing shrimping grounds. We are commercial fishermen and a good part of our annual income is derived from shrimping. .... A LTF not only affects the shrimp but the related logging activity also costs me gear and loss of one of my prime shrimping grounds. Every time a tug and tow takes out a buoy, which includes pot, line, buoy and light, we lose several hundred dollars."* MJF-95

> *"We believe the FEIS needs to include a conceptual evaluation of log transfer methods that could significantly reduce impacts to marine habitats. At least one local operator has proposed using temporary, piling-supported piers to transfer logs to barges. ..... This technique appears to offer a feasible alternative that would reduce impacts to both the shoreline and the subtidal area in the vicinity of the facility, as compared to the low-angle ramps proposed. Using temporary piling instead of fill avoids direct habitat loss. Transferring logs to barges, rather than to the water, should result in far less subtidal bark and debris accumulation, which has been shown to have long-lasting, detrimental effects to benthic communities. We also understand that timber quality would be improved by avoiding in-water storage."* USDI-97

> *"The DEIS further fails to declare whether the construction of new log dumps will impact wetlands. Given that the log dump would be constructed in the intertidal zone, we must assume that some wetlands will be affected. If any wetlands will be affected by the log dump, the Forest Service must choose an alternative which doesn't require a new log dump, or that documents how the chosen alternative adequately minimizes adverse impacts."* SEACC-158

> *"The DEIS includes no real analysis of different transfer alternatives, such as helicopter to barge, or other alternatives to log dumps. Practicable alternatives exist, and facility design proposals, such as Steve Seley's temporary log transfer facility, are available to completely avoid in-water dumping, rafting, and discharge from logs in addition to minimizing the footprint of necessary structures. See Pacific Log & Lumber, Log Transfer Facility Proposal (May 19, 2000)(attached). The State of Alaska Department of Environmental Conservation (DEC) determined that, within the Cholmondeley project area, it is both feasible and economical to build a low-profile, temporarily placed shot rock barge bulkhead for direct land-to-barge log transfer. See State of Alaska DEC NEPA/ACMP Review Comments (02/16/01). The DEIS failed to consider either of these alternatives."* SEACC-158

"There is access through Giants Head to the lands behind Saltery Cove. You do not have to enter through and log the community's watershed. The water draft in Giants Head is deeper and more protected for an LTF than the current site you have selected in McKenzie Inlet." MJF-95

Response: The Log Transfer Facilities (LTFs) have been located to have the lowest possible impact on the environment and still comply with the Alaska Timber Task Force (ATTF) log transfer facilities siting guidelines established in 1985. All sites proposed must meet the siting guidelines for environmental effects and operational safety as part of the LTF permitting process. The LTFs are designed, constructed and operated within the constraints of the permits that allow them. Short-term impacts will occur from the LTF and logging activities, although muffled and screened by the forest and distance from activities in the marine areas. The activity and changes that will occur are consistent with the activities for areas designated for the timber production Land Use Designation (LUD).

The Corp. of engineers (COE), Environmental Protection Agency (EPA), and the State of Alaska Department of environmental conservation (ADEC) have requirements to minimize and mitigate the effects of LTF activities through the permitting process, including non-point discharge elimination system (NPDES) stormwater permits. The LTF construction and operation will be conducted within the permit limitations.

Three LTFs are being proposed out of 22 possible sites considered for this project. Sites were chosen using the ATTF guidelines for LTF siting. The LTFs were sited to provide the lowest visual impacts possible. The low angle ramp system has the lowest impacts on the uplands due to not needing a sorting/storage area for logs and does not require a large operational area at the transfer point. The trade-off for the lower impact on the uplands is the short-term impact on the marine environment with the logs being stored in rafts. Alternatives to using LTFs are displayed in the range of alternatives (Chapter 2 of the Final EIS).

All active LTFs permitted to the Forest Service are monitored on a yearly basis. Dive monitoring on LTFs permitted to the Forest Service is a requirement of the timber sale contract. Monitoring transects are established to monitor accumulation of bark and to detect any other changes in the marine environment that may have occurred due to use of the LTF. These monitoring reports usually include a video or pictures of the ocean bottom, along established transects at the LTF. These pictures are included in the report that is sent to the EPA.

g. Subsistence

Several people expressed concern for impacts to subsistence resources, including wildlife, fish, shellfish, and water, on which Saltery Cove residents depend.

"Connected impacts on subsistence uses of the project area must be considered. The Tongass Tribe also includes the project area in its traditional and customary subsistence grounds. According to Forest Service and Alaska Fish & Game data, residents of Craig, Hollis, Hydaburg, and Ketchikan have historically used the proposed sale area for deer hunting. (See TLMP 1991, SDEIS and accompanying F&G surveys). Although the DEIS states no specific harm to subsistence opportunities due to the proposed Cholmondeley sale, the Forest Service never considered how subsistence needs on Prince of Wales Island will be filled as more and more high value forest becomes less productive due to development. More subsistence users will be crowded into fewer, smaller and less productive areas, competing and reducing opportunities for subsistence success. All of these, in turn, further compromise fish and wildlife habitat and reduce subsistence value. The DEIS must include an analysis of such cumulative effects in its discussion of impacts on subsistence." SEACC-158

"ANILCA Section 810 requires the Forest Service to analyze the potential impacts to subsistence users and needs. The DEIS reviews some of the area uses of Saltery Cove and Sunny Cove residents, but does

not include all sources of food, such as berries, shrimp, octopus, shellfish, birds eggs, and more. The Forest Service has not done an adequate job meeting with and collecting subsistence use information from federally recognized tribes. Though Kasaan is the closest subsistence community, the Cholmondeley area is a customary and traditional use area for Metlakatla and Saxman residents." SEACC-158

"... under ANILCA you did not identify or ask us prior to the Draft E.I.S. what, where, when, why, how or what we collected as subsistence. We were not afforded any stewardship or collaborative efforts on your part as spelled out by your own rules. We were not offered any mitigation either, in fact, your public meeting, which you say happened in Saltery Cove September 1999 did not occur. .....public meetings of 9/97, 3/99, 9/99 and 3/2000. I don't think they were advertised." RJL-44

"The most important subsistence issue is our water. If our water is silted or the flow disrupted then we will no longer be able to live on our land. Do not log in our subsistence area." DMO-32

".....I feel that water should be recognized as a subsistence. You can't subsist without water, and the wild habitat that you subsist off cannot subsist without water, so it's a domino effect. If the water source is affected, all of their subsistence is affected." RP-OVK-Oral Subsistence Testimony

"The worst damage will be to our watershed that provides our biggest subsistence need of all. Clean unpolluted drinking water. Water to clean and prepare all the other foods the area provides. A road through our watershed and cable logging in it is bound to affect our drinking water." DLW-32

"I consider water as the number one subsistence commodity. Without it we can not exist. We depend on it not only for domestic water but have water rights on a stream within the proposed sale that provides us with water for our Pelton wheel that gives us electricity the better part of the year." JL-29

"Even the Forest Service in their Draft EIS indicates our deer population would diminish and our streams in our watershed would silt up. If our stream silts up – we would have damage to our primary source of energy – the Pelton Wheel." JL-29

"The proposed road will go through an area that we use for deer hunting." DMO-32

"The deer population has remained stable in and around Saltery Cove for years. I am sure if the sale goes through that it will decline as roads are built through prime deer habitat. ... ... The proposed logging also includes the deer's winter grounds. The residents here all hunt and venison is a big part of our staple diet. We would certainly feel the effects of the damage to the deer population." DLW-32

"We also live a subsistence life style utilizing deer, salmon, halibut, crab, shrimp, clams, wolves, and bear. In addition in season we pick berries, goose tongue, beach asparagus and devils club for medicinal tea used traditionally by our forefathers." JL-29

"We rely on the crab, shrimp, fish and deer to survive, as well as our neighbors. The area is small, but relied on by all of us. We have not stores close to use, as this is the way we want it." MJF-30

"The logging proposed for the Cholmondeley timber sale will interfere with our subsistence area. The LTF is placed in an area that we fish and shrimp." DMO-32

"Should the sale be approved it would place a large concentration of people, who have no long term interest, in the middle of the very area that we have traditionally shrimped, crabbed, fished (both salmon and bottom fish) clammed and hunted." DLW-32

"Every year we pick blueberries and huckleberries in the proposed logging area." DMO-32

Response: The analysis summarized in the Final EIS shows that although the proposed harvest activities will not present a significant possibility of a significant restriction to subsistence uses,cumulatively, under full plan

implementation a possibility of a significant restriction does exist for WAA 1214. See the subsistence section in chapter 3 for more details. ANILCA 810 hearings were held and the results were incorporated into the Final EIS.

Native tribes and corporations were informed and consulted by various means during the NEPA process. Native tribes and corporations were sent scoping letters, an informational meeting on subsistence was held in Kasaan in October of 1999. A subsistence meeting was planned, announced, and held in Kasaan during the comment period. The draft cultural report on the Cholmondeley Timber Sale was sent to all Prince of Wales (POW) tribes and others in November of 2000. POW tribes were informed of the project at their January 2001 meeting. Ketchikan Indian Corporation was briefed on the project in December 2000. The DEIS was mailed to all the Federally recognized tribes in the area. The Common Grounds meeting of many tribes also introduced the project in Craig. The comment period was open for the purpose of gathering more subsistence data. See chapter one for added wording to the text about public comments.

Subsistence questions were clearly asked in at least one meeting with Saltery Cove, Sunny Cove and Clover Bay stakeholders. Subsistence users were reserved in sharing details of their use area. Written comments have also been received during the comment period.

The Draft EIS evaluated the potential impacts (including fisheries resources) associated with all of the proposed alternatives. The Draft EIS did not state that the streams would silt up. The Draft EIS did say "fine sediment would likely enter the stream in unit 614-001b during installation of log stringer bridges and hauling of rock and logs." Water quality is discussed in detail under Issues 1-3 in the document.

The analysis shows no significant impacts on water flow for power generation/heat. This has never been a litigation point under Section 810 of ANILCA. We believe we will have no significant effect on the quantity of water flowing through the watershed. Local ditch diversion will not change the quantity flowing to the private water intakes or for other uses.

Wildlife models were run as the normal means for analyzing effects of harvest and roads on subsistence species habitat. Our deer models have shown that the deer population will decline but that it will remain above that which the Forest Plan recommends to sustain both wolf predation and hunters in WAAs 1212 and 1213, which constitute the majority of the project area. The deer numbers in WAA 1214 are predicted to drop below that which the Forest Plan recommends to sustain both wolves and hunters; however, this WAA is less than 1 % of the project and other past projects outside of the project area have had more influence on the WAA. The wolf population and its trends are closely tied to the deer numbers. It is predicted that there will be enough deer over the majority of the project area to support both wolves and hunters. We do not anticipate a significant increase from Ketchikan hunters, particularly if roads are closed as proposed. The timber sale is anticipated to have little effect on the black bear population.

Many comments regarding subsistence uses centered around saltwater activities. The Forest Plan places a one thousand foot no-cut beach buffer on all shoreline. This will ensure no disturbance of beach plants, clams, and other beach subsistence uses. Riparian and other stream protection measures will ensure fish habitat/population protection.

Log Transfer Facility (LTF) effects are covered in Appendix F and in various dive reports in the planning record. Short-term presence depending on the sale size, yarding methods and the log watering methods (varies per issue area) will limit the effects to a temporary displacement of the shrimp/crab fishermen. Selection criteria for LTFs include good marine flushing which will ensure quick recovery and only temporary effects.

Upland plants such as individual medicinal plants (devils club) will be impacted but these plants are common and populations will not be in danger. Berry plant populations should actually see an increase as harvesting would open up the canopy.

h. Site Specifics

Several comments concerned site-specific issues such as units or roads:

> *"Units 614-001b, 614-002, and 614-034a: These units occur within the Saltery Cove watershed and would be available for harvesting under two of the modified alternatives that we have suggested which utilize helicopter yarding and do not construct the 2190000 Road. The harvest prescriptions, including the proposed stream buffers and varying basal area removals that are proposed for these units under Alternative 3 should be applied under all alternatives, including those that we have suggested."* AK-DGC-103

> *"Dennis Landwehr said he is going into our watershed mid to end of March this year. I would not be able to comment on his findings because it is past the 45 day comment period."* RJL-44

> *"I learned from Gary Lawton that a timber cruise was not done. If this is so, how did your economist reach their conclusions through the Draft E.I.S. This must not be accurate."* RJL-44

> *".....how many of your specialists have been in the units in Saltery Cove? .....Who is the water specialist that walked the area and signed off on all of our domestic water streams? .....Who cruised the timber? How much of the work concerning Saltery Cove was done on the ground?"* MO-75

> *"It is no wonder that you did not include [the Floodplains, Soils and Wetlands Resources Report for the Cholmondeley Project Area] in the DEIS. I could cite more but I'm sure you know what the report says. Are other agencies aware of what this report states?"* DMO-94

> *"We maintain that the only time Mr. Landwehr entered unit 614-001 was in May of 1999 with Mr. Levesque. That visit, which was less than 2 hours, was spent walking and identifying the Bliss stream and it's tributaries. This was the first time that stream and its tributaries had been identified by the Cholmondeley team."* DLW-96

Response: The Final EIS analyzes various alternatives including both road access and helicopter yarding for 614-001b, 614-002. and 614-034a. The associated impacts for each alternative are included in the Final EIS. The ROD for the Cholmondeley project will include the harvest prescriptions described under Alternative 3, with few changes.

Forest Service representatives have been meeting with the people of Saltery Cove for several years in a good faith effort to identify issues, and making an extensive effort to develop as many mitigations measures as possible to address and minimize the impacts. We have incorporated or addressed new information as it comes to our attention. We have always tried to be forthright and have said throughout the Cholmondeley planning process that we needed to develop a range of alternatives against which to compare effects. The Draft EIS was an effort to put a recommendation on the table to pull out more issues. The Final EIS summarizes the additional analyses completed in response to the coments received on the Draft EIS and sharply defines the tradeoffs so that the public and decisionmaker can understand the effects of whatever decision is made.

The list of specialists and crew members that have visited Unit 001 is extensive: Roger Johnson (former soil scientist), Steve Levesque (hydrologist), Dennis Landwehr (soil scientist), fish crew (2) on streams, wildlife crew (2) all over the unit, stand exam crew (4), and Jack Oien (transportation) on roads. As a soil scientist, Dennis has some expertise in watersheds. Roger Johnson also reviewed all of unit 614-001a and identified some concerns with windthrow in the (pre-draft) proposed buffers. The IDT used the information collected by the seasonal fisheries crews, Roger Johnson, Steve Levesque and Dennis Landwehr and resource maps such as soils, streams, timber type, and topographic maps with stereo air photo interpretation to design buffers with a logical break in slope and timber type break

Office review also involved many people. Steve Levesque was the hydrologist and Bill Goodman has continued in his place. After recreation specialist Joan Kluwe began the recreation input, John Short, the landscape architect, also reviewed the unit. Gary Lawton, Terry Fifield, and John Hannon (fisheries biologist), along with John/Dennis/Steve, all shared the hydrology responsibilities as they tied into soils. Refer to Chapter 4 for a complete list of preparers.

The purpose of Dennis Landwehr's planned visit in March 2001 was to review the road location with an engineer, identify any additional watershed features affected by the road, fine tune mitigation measures, and, if time permitted, verify the slopes over 72 percent gradient in the harvest unit. A watershed resource specialist with an understanding of the water quality issues will work with the Craig Ranger District presale crew to ensure the appropriate buffers are left on streams used for domestic water supply and complete an on-site investigation of slopes over 72 percent gradient. Alternative 3 was developed with expanded diameter limit cuts beyond the no-cut buffers to provide a stronger reasonable assurance of windfirmness than is required by the Forest Plan.

The Floodplains, Soils, and Wetlands Resources report for the Cholmondeley project Area is summarized in the Final EIS. Over the past several years, the Forest Service (based on public input) has sought ways to reduce the size of our environmental impact statements. Many people are not interested in reading the details contained in the various resource reports, but state and other federal agencies often are. Resource reports are part of the public record and made available to the interested people when requested. This saves the Forest Service printing costs and spares many people from reading the details (about wetlands, for example) that really do not interest them.

Dennis Landwehr reviewed unit 614-001a once, with Steve Levesque in 1999. The Bliss stream was identified in 1997 but was not considered for protection because of its size. As a result of the 1999 investigation, the stream used by Bliss was surveyed and buffered. These additional mitigation measures are included in all the action alternatives in the Final EIS.

Cholmondeley is still in the planning and reconnaissance stage. A cruise will be done later when the unit configurations are finally laid to the ground and after units are NEPA-cleared in concept. It would be a waste of money to cruise the whole area before the record of decision determines where things will be. The cruise is more accurate, more expensive, and used for the logging contract later in the process. What is normally used at this stage is a stand exam to get estimates of volumes and species breakdowns, insect and disease problems, plant species present, and give us an idea of what logging systems are optional. These estimates are used with average logging costs experienced in the area at different market conditions to give us values. The result is not an exact dollar value but numbers to use when comparing alternatives.

All public concerns have been reviewed and addressed In the Final EIS.

5. Clover Bay Issues

a. Scenic Quality

Many people expressed concern for impacts to the scenic beauty of the area and the impacts harvest and road building would have on the experience and the viability of local lodge businesses:

> *"I feel the logging of the areas surrounding Clover Bay would be of great disinterest to the people of Alaska and the entire United States. The pristine beauty and fragile ecological system, coupled with dwindling salmon habitat would be severely compromised if this logging were to occur."* MCN-9

> *"We know the reaction of guests who fly over the island and see all the logging and what they say when they see the logging that took place on Sumez Island across from Waterfall."* DPM-33

"If you cannot agree to prevent logging in its entirety, then the very least that you should require is that the logs be removed by helicopters, and that Clover Bay not be used as a log dumpsite. A log dump, sorting yard, and floating logging camp will totally destroy the pristine nature of Clover Bay." VWZ-64

Response: Only one unit will be partially visible from any portion of the bay. The upper corner of unit 616-010 could be lowered as additional mitigation when the decision is made, making the unit not visible from the water in Clover Bay. Within the inner part of the bay, this limited scale of harvest will meet partial retention visual objective from where it is seen (two levels higher than the Forest Plan-adopted objective of Maximum Modification), and a retention objective from most of the inside portion of the bay from where no harvest is seen. See details in the scenery section under issue #2 in Chapter 3. It provides more discussion regarding measures taken to significantly reduce the visual impacts. The unit cards may also be referenced. In the outer portion of the bay the proposed LTF would be visible. The major impact would be a ramp about 100ft. in length extending down to the shore. The road leading from the ramp at saltwater and the sorting area would be slightly visible behind a narrow fringe of trees along the shore. No rock pit will be visible from the water. This LTF design creates less visual impact than almost any other type of design. After completion of logging, the disturbed areas will be rehabilitated by covering with overburden and revegetating with native materials.

The ramp and road will be partially screened by the forest peninsula from views from the east. The ramp will be visible from viewpoints to the south and southeast of the LTF. The road leading from the ramp and the operating area will partially screened by a thin fringe of trees. These need to be preserved to limit the visibility of these latter two elements. From the small cove formed by the peninsula, the road and operating area and boat dock will be clearly visible. Log rafts will certainly be visible. After logging is complete, under current standards, all equipment and debris will have to be cleaned up.

b. Lodge Business

A number of people were very concerned about the impact the proposed project could have on Clover Bay Lodge. The owners of the lodge, as well as many of their clients, felt the economic benefits of the existing business were not adequately displayed in the EIS. They also felt the impacts of timber harvest on their business were not fully and accurately disclosed.

"As the owner of a remote lodge myself, I know what the reaction of my customers would be if there was logging activity started within eye and ear shot of the lodge. I'm not sure we could survive it and I'm not sure Clover Bay could either. I encourage you to strongly consider the economic impact to this business before a final decision is made regarding the log dump site." KMT-27

"What is the overall impact of the Forest Service army of personnel helping the short term private industries of logging – and road building to succeed while taking away the ability of another long term private industry, recreational use of the public lands. Then is it expected that more public moneys will be spent to try and build back the recreational use in later years?" SBO-35

"I can't believe the Forest Service is considering logging on this part of Prince of Wales Island. This [short-sighted] unnecessary action would not only devastate the fishing and wildlife of one of the few remaining accessible pristine areas, but also would desecrate sport and commercial fishing and endanger several successful fishing lodges in the area." JHK-53

Response: See the scenery section under Issue 2 (Chapter 3 of the Final EIS)for more details of the relationship of scenery to the lodge business in Clover Bay.

We have included many practices and mitigation measures in addition to standards and guides, to lessen the "risk" to the existing jobs. We have considered visuals, effects on fisheries habitat and populations, noise levels, length

of operating seasons, yarding methods, yarding timing restrictions, barging and rafting methods. All of these could have effects on clients and ultimately recreation jobs.

We did estimate what relative risks to employment may occur between the alternatives. We looked at the workforce as a whole and did not distinguish between the seasonals and lodge owners. The rating system was based on the relative effects of the harvest activities and potential for altering the scenery and the clients "wilderness" experience (Social and Economic Report in the project file).

A comparison of the seasonal workforce was not attempted. A seasonal workforce is characteristic in all phases of the Alaskan workforce. People come up from "down south" to work seasonally in logging as well as in the recreation industry. In the same way, it would not be productive to compare the ripple-down effect of monies as they pass through the local economies, because these occur in recreation and logging and we would find it difficult to show a difference between the two. Also it would be difficult to find all the various service businesses affected by each industry. See the "Lodge Business" section under Issue 1 (Chapter 3 of the Final EIS) for more of the analysis.

One of the goals of the Forest Plan is to diversify the economy. This diversity includes recreation as well as logging. Transient loggers come from south as well as many recreation summer workers. However, even though that workforce exists as a moving workforce from bay to bay or town to town, it has been part of the economics of the region. With a close look at the effects and with the implementation of standards and guides and mitigation measures of the new Forest Plan, the two industries can exist.

The historical Land Use Designation (LUD) in the Forest Plan calls for development in the area. Not providing volume from where the plan calls for it, especially in a time of shrinking timber base, would not meet Forest Plan objectives.

The length of time that logging equipment or helicopter would be present, in the selected alternative, is relatively short. See Table 3-3 in the Final EIS for logging activities associated with each alternative. Logging is part of the Alaska experience.

A different type of land based activity would be available as closed roads would be available for hiking activities. Clover Bay Lodge owners expressed that their clients are only interested in a wilderness experience. However, the opportunity would exist for a business responding to a changing clientele.

We do not have knowledge of any studies conducted in Southeast Alaska regarding the effects of harvest activities on the economics of fishing lodges. However, we conducted an informal study in which we interviewed several lodges that have timber harvest in their facility viewshed or where clients' activities occur. They responded generally by saying they feel harvest has not had an impact on the economics of their lodge business. Several other lodges were not contacted but they are in business and have timber harvest in their vicinity. See the Appendix of the Socio-Economic Report.

c. Domestic Water

Many of the local residents as well as the State of Alaska Department of Environmental Conservation (ADEC) and the US Environmental Protection Agency (EPA) expressed concern regarding the impacts of timber harvest and road construction on domestic water sources. Some concerns focused on impacts to water quality throughout the project area as indicated by the following comments:

> *"Both Alternatives 4 and 5 of those listed in the DEIS are inconsistent with the ACMP and with TLMP Soil and Water Standard and Guideline S&W 112.A. If implemented, they would create conditions that are in violation of both the Alaska Water Quality Standards and the Alaska Drinking Water Regulations, particularly the Source Water Protection Requirements. These elements make these Alternatives inconsistent with several standards of the ACMP found in the Forest Practices Act and Regulations.*

Specifically, AS 41.17.060(b)(5) and (c)(5) state, respectively, 'significant adverse effects of erosion and mass wasting on water quality and fish habitat shall be prevented or minimized' *and* 'there may not be significant impairment of the productivity of the land and water with respect to renewable resource.' *In addition, 11 AAC 95.185(b) states that* 'For all lands, the operations recognized under this chapter shall be conducted in a manner that does not cause or constitute a substantial factor in causing a degradation of water quality.' *(emphasis added)"* AK-DGC-103

In a telephone conversation between the USFS and ADEC on March 7, 2001, The ADEC indicated that the road location through the watershed used by Clover Bay would be inconsistent with the ACMP and with TLMP Soil and Water Standards and Guideline S&W 112.A. AK-DGC-103

"We recommend that the EIS also discuss the impacts of harvest activities to the hydrograph and timing of flows in watersheds that serve as drinking water sources. We are concerned that harvesting could result in a faster hydrologic response and consequently greater overland flow, less storage (perhaps with more frequent periods of low or no flows), and a greater potential of erosion." EPA-167

"We were very disheartened to hear that your department had no interest in preserving our water supply other than 'monitoring' and plan to solve any problems created by logging. In particular, we are quite nervous about possible contamination by oils or fuels getting into the water. Your statement that 'you don't expect a fuel spill to happen' really doesn't help us if we have to shut down our business with a lodge full of guests because the DEC says so. We are required to do daily testing as a public water system with reports and tests [sent] to the DEC" SBO-170

"Since we test our water at the tap, as required by the DEC regulations that we must operate under as a public drinking source, we do not have any of the information needed regarding the watershed and the tributaries that feed into our permitted water supply." SBO-170

Response: The Final EIS and Addendum to the Floodplain, Soils, and Wetlands Resource Report for the Cholmondeley Project Area provides a discussion of potential changes to streamflow. The analysis shows no changes to streamflow as a result of the proposed activities.

No roads will be constructed in the source area for the public drinking water systemof the Clover Bay Lodge. Cholmondeley IDT specialists conducted additional field visits to reexamine the proposed road alignment in Clover Bay, as described in the Final EIS. The specialists determined that the risk of sedimentation getting into the stream channel during the building, operation, or decommissioning periods was high. After this conclusion was reached, it was determined that other options for road locations existed. In the Final EIS, the road proposed to access unit 616-010 has been realigned, and this new alignment does not enter the watershed used for drinking water by the Clover Bay Lodge. Stream sedimentation would occur at natural levels. Yarding of unit 616-010 will be done by helicopter.

d. Log Transfer Facility

A number of people were concerned about the impact that a Log Transfer Facility in Clover Bay could have on wildlife resources, marine water quality, commercial, sport and subsistence fishing, scenic views and the lodge business in the project area. Several comments were in reference to LTFs in general. Those comments and responses are included in the Saltery Cove LTF section (4.f).

"It would be a terrible shame to ruin this pristine area with a logging dump. There have to be at least a few other sites where there is no established fishing lodge to put a log dump." JL-11

"It looks like you are reviewing the feasibility of moving the log dump to a different location and also the feasibility of helicopter logging in the area without building an extensive road system and log dump. I

would support either of these alternatives and encourage you to further study these options as they would have much less of an economic impact on the lodge located in Clover Bay." KMT-27

"My husband and I are totally shocked that the US Forest Service, which is supposed to be the stewards of the public lands, would even consider putting an LTF in this wilderness cove!.....Why didn't you have an LTF sight down the coastline? Less road would have to be built and there would still be recreational value in Clover Bay." DM-23

"I am not against logging but I hope you will not put a log dump at Clover Bay. My disabled step son and I spent a week at Clover Bay Lodge and enjoyed the beauty of the bay and the people at the lodge. I think a log dump and rafting area would not be compatible with the lodge. As the lodge has been there since 1984 I hope you will give its future some consideration and use an alternative that will not put a log dump there." BR-70

"The AFA suggests eliminating the proposed conventional LTF in the mouth of Clover Bay. The selected location is workable but not ideal. In addition to causing difficulty for the lodge operator in Clover Bay, the location is subject to winds and swells due to proximity to the open waters of Clarence Strait and the southeasterly exposure. Further, the location does not provide an adequate raft storage location unless the operator tows the rafts into Clover Bay proper and stores them in the protection of the further recesses of the bay. The best LTF location with adjacent storage is in Clover Bay proper, on the protruding point of land west of the lodge location. Moving the LTF to this location would provide the most safety and best operating conditions for the industry, but would clearly be in conflict with the best interests of the competing users of the bay. AFA proposes two optional solutions, with a preference for Option 1.

> ***Option 1.*** *Locate the LTF about 600 feet southeast of the mouth of the stream that flows out of Monie Lake, just to the west of Doctor Point. This should be designated a small barge-loading facility such as that proposed by Steve Seley to ADEC's Science and Technical Task Force on LTFs. The facility is also essentially the same as that designed for the 3-Mile Arm timber sale project on Kuiu Island and submitted as an exhibit in DEC's comments on the Cholmondeley project. The Forest Service would have to review the feasibility of this location under the ATTF siting guidelines, but industry believes a small-barge facility could be accommodated in this inlet. The site can be accessed by a road from unit 616-011 as sketched on the attached map segment. The southern-most spur in the unit could be reconfigured to follow along the shore of the small lake between 616-011 and 616-007 and thence follow the hillside north to the barge site. This road construction cost would be offset by not building the 2180000-1 Road south from unit 616-010. If this option is chosen, unit 616-011 should be reconfigured to take maximum advantage of the new road location as indicated on the sketch. This location is close enough to the harvest units that cold decking could be done in the units and the logs transported to the barge at the time of loading. This will minimize costs and visual impacts at the LTF site.*
>
> ***Option 2.*** *Locate the LTF as indicated in Alternative 5, but convert it to a small barge facility as described in Option 1. This will eliminated the raft storage problem and minimize the impacts on the Clover Bay Lodge. If this option is chosen the Forest Service should allow for log storage at the LTF site, but it should be located behind a screen of trees to minimize visual impacts."* AFA-157

"There is a very large table rock at the entrance to the cove across from the LTF proposed site. We have seen boats stranded up on this rock and think that this will make it hard or impossible for boats of any size to town in/out with log rafts and/or log barges." SBO-35

Response:

The effects of using the barge facility, as suggested in comments, is possible and was analyzed prior to proposing the low angle ramp. For example, the Clover Bay LTF is designed as a low angle ramp. The ramp extends 175 feet out into the water from the high tide line and ends at a -5-foot elevation. The grade at the top of the end of the ramp is a -2.5- foot elevation. A barge facility in the same location would have to extend an additional 25 feet further to meet the depth requirements, -8.5 feet, as in the Three Mile Draft EIS example you use, with a final grade elevation of +19.0 feet. The difference in rock fill height between the low-angle ramp and the barge facility is 21.5 feet. This additional fill will increase the footprint of the ramp by a minimum of three times. There will also be a significant change in the visual effects of the barge facility, as the viewer will see a rock causeway extending out into the water at most tide conditions and a log sort/storage yard on the uplands will be required. The low angle ramp will have a very low profile with minimal visual effect at most tidal conditions. The trade-off for the lower marine environment effects at the ramp and less visual effects is that the logs will need to be put in the water and stored in rafts. Logs stored in rafts can lose bark and have an effect on the marine environment. The volume of timber to be put in the water is relatively small compared to most LTFs. There is anticipated to be only 15-20 mmbf from this EIS with no other substantial volume anticipated until the next rotation.

Clover Bay is the most protected area along the entire coastline north or south of the area. This is one of the reasons the LTF is proposed for this area. Conditions outside the bay are considerably more extreme than what you have described inside the bay. The much higher operational safety of the Clover Bay site is just one of the reasons for proposing to locate the LTF in Clover Bay.

Option 1, as described by the AFA comment above, is one of the sites initially located and investigated for an LTF site. After extensive analysis of the site, including underwater dive surveys, the site was eliminated due to the marine habitat in the area, poor flushing of the site, and operation safety of the LTF in an area as exposed to the weather as the one you have indicated. The dive report supplied by the FWS describes the marine habitat and states the site is "not recommended" for development as an LTF. In order to construct a barge-type LTF facility at this site (similar to the one reference in the Three Mile Draft EIS) there would have to be a rock causeway constructed out to the –8.5-foot elevation in order to have enough water for the barge to load at partial tide. As shown in the FWS survey and profile of the ocean bottom at this site, a causeway of approximately 100 meters (300 feet) long would have to be constructed. A barge facility at this location would affect nearly three times the marine bottom compared to a low angle ramp system. With the determination by the FWS that the site is "not recommended," the type of site really doesn't matter. We would not be able to develop one at this site, regardless of type.

The rock mentioned was noted during the LTF reconnaissance and will be a concern for operating in the area but will not be an obstacle to use of the proposed LTF.

Because of issues raised with the Clover Bay LTF, another option for an LTF near Island Point is being analyzed and described in Alternative 6. Additional costs of using this less desirable LTF are displayed in Chapters 2 and 3 of the Final EIS.

e. Community Privacy/Security

One letter expressed concerns that the road from Clover Bay would impact the privacy and security of The residents there.

> *".....the roads from Clover Bay will be open to motorized vehicles, effectively opening the sale area and exposing residents to outside competition and harassment."* SEACC-158

Response: There are no existing roads with in one-half mile of the proposed road system. Roads will be closed to motorized vehicle traffic during and after road construction and silvicultural activities have occurred. Only administrative traffic will be allowed. Under 36 CFR 261.10, which applies to all NFS lands, the following are

prohibited: (d) Discharging a firearm or any other implement capable of taking human life, causing injury, or damaging property as follows:

(1) In or within 150 yeards of a residence, building, campsite, developed recreation site or occurpied area, or

(2) Across or on a National Forest System road or a body of water adjacent thereto, or in any manner or place whereby any person or property is exposed to injury or damage as a result in such discharge.

Upon completion of silvicultural activities, all roads will continue to be closed to motorized vehicles and will be put into storage with all drainage structures removed and the roadbed stabilized.

f. Wind Patterns

Some comments expressed concerned that timber harvest could reduce the amount of protection currently provided in local anchorages, or that timber harvest could change local wind patterns.

> *"You have not addressed what will happen with the wind after the roads, log dump, and logging occurs. Will it result in more wind in the bay? Will it result in trees being blown down into the water stream, there can be very high winds in the area now (witness the broken trees there). This can also displace the wildlife and our lodge and cause problems for our guests and employees."* SBO-35

> *"The prevailing wind which is Southeast is very fierce in the fall and winter and will make it very difficult to hold log rafts and large logging floating camps. We are constantly vigilant to be able to keep our lodge and floats in place and have gone to considerable expense to install heavy anchors and chains with renewal of same every few years."* SBO-35

Response: As any tree matures and becomes decadent there is a danger that it will fall at any time. Wind events are unpredictable. The normal disturbance pattern on the Tongass is gaps in the canopy due to individual or small groups of trees blowing down. A discussion of wind in Clover Bay has been added to the analysis discussions in Chapters 1-3 and in the Summary of the Final EIS.

g. Site Specifics

Several comments concerned site-specific issues such as units or roads:

> *"Unit 616-010: .....this unit should be dropped from harvest consideration to avoid impacts to the continued economic viability of the Clover Bay Lodge. Doing so would also assure the protection of the lodge's drinking water source which occurs downslope of the lower unit boundary."* AK-DGC-103

> *"Unit 616-011: Under Alternatives 4 and 5, this unit would be yarded using a combination of helicopter and running skyline systems. However, as depicted on the unit card map, the area with slopes greater than 72 percent in the southern portion of the unit would create a blind lead while cable yarding to the landing shown on the map. Therefore, while we believe the entire unit should be yarded by helicopter, at the very least, this running skyline setting should be changed to a helicopter setting to avoid impacts to slope stability associated with cable yarding across a convex slope."* AK-DGC-103

> *"Unit 616-021: The same blind lead situation occurs in the area of slopes greater than 72 percent located in the southcentral portion of the unit where slackline yarding is proposed. As with Unit 616-011, this area should be changed to a helicopter setting unless full suspension can be assured while yarding over this convex slope." AK-DGC-103*

"Units 616-023 and 616-123: Blind leads also occur on the slopes greater than 72 percent located in the eastern portions of these units. These slopes should be deleted from the units unless full suspension can be assured during yarding operations." AK-DGC-103

"Unit 616-275: ..... As depicted on the unit card map, it appears that slopes greater than 72 percent do, in fact, comprise approximately 22 acres and not 8 acres. Given their contiguous nature, these slopes should be excluded from the unit simply by relocating the backline to just below their occurrence." AK-DGC-103

Response: A portion of unit 616-011 is already designated for helicopter yarding. During sale layout, if suspension cannot be achieved, then the helicopter setting boundary will be adjusted to ensure required suspension can be met.

A soil scientist reviewed unit 616-021 in the field. Two acres of slopes over 72% were identified west of the water quality stream located mid-unit. The steep slope areas are in a helicopter setting. The slope map on the unit card was derived from the best available data in a GIS format. The soils section of the unit card describes the acres and location of slopes over 72 percent.

A soil scientist reviewed unit 616-123 and three acres of slopes over 72 percent were identified below the cliffs. The steep slopes are not on blind leads but do present a difficult yarding opportunity from a logging systems standpoint. This is discussed in Appendix A of the Floodplains, Soils, and Wetlands Resources Report for the Cholmondeley Project Area. Unit 616-023 has not received an on-site investigation by a soil scientist. The identified slopes over 72 percent will be set aside as reserves, and any newly identified acres located during unit layout wil be analyzed by a soil scientist. See Section 5.c for response on unit 616-010.

Unit 616-275 was field-reviewed by a soil scientist, who estimated the acres of slopes over 72 percent at eight acres. The field review found two landslide-prone areas that were easily excluded from the unit. (See Appendix A of the Floodplains, Soils, and Wetlands Resources Report.) The unit card map was derived from the best available data in a GIS format. Eight acres is the appropriate acreage of slopes over 72 percent in unit 616-275.

6. Sunny Cove Issues

a. Domestic Water

Many of the local residents as well as the State of Alaska Department of Environmental Conservation (ADEC) and the US Environmental Protection Agency (EPA) expressed concern regarding the impacts of timber harvest and road construction on domestic water sources. Some concerns focused on impacts to water quality in general, while others focused specifically on the Sunny Cove area as indicated by the following comments:

i. Turbidity

"As mentioned to the Forest Service during our previous discussions regarding this project, log stringer bridges must be used at these crossing sites to avoid the substantial sedimentation that would occur during culvert installation and removal. If installed correctly, these short bridges would require no instream work and would, therefore, maintain water quality at or near background levels and be in compliance with the Alaska Water Quality Standard for turbidity and the Antidegradation Policy. They are also necessary in order to be consistent to the maximum extent practicable with AS 41.17.060(b)(5), which states 'significant adverse effects of erosion and mass wasting on water quality and fish habitat shall be prevented or minimized'." AK-DGC-103

"We also stated that if a road must be constructed in the Sunny Cove watershed, temporary log stringer bridges, rather than culverts, should be installed to minimize or avoid the potential for sedimentation of the domestic drinking water source of the residents of Sunny Cove. However, in examining the alternatives presented in the DEIS, it appears that all of the concerns expressed by the residents, lodge owners, and the department have not been addressed or mitigated in any meaningful way." AK-DGC-103

"My main concern is the water quality of Drinking Water Creek after a road has crossed it or it's tributaries, four times, which is what would occur in any alternatives where a road is constructed. This creek has traditionally been the source of water for not only for my family but all Sunny Cove residents. Without a supply of potable water, you would be limiting the use of their land." TS-133

"Water quality standards, sediments & turbulence would exceed quality standards. This is not acceptable." RKA-130

Response: Stringent mitigation measures (see appendix G of the Final EIS) and a compliance monitoring plan (see Chapter 2 of the Final EIS) for road crossings upstream of private water supplies provide a reasonable assurance that state water quality standards will be met. These mitigation measures are above and beyond the mitigation that would be used on a similar road outside a domestic water supply watershed (ie, BMPs designed with interagency consultation).

ii. Capping

"Drinking Water Creek provides the domestic drinking water for the residents and property owners at Sunny Cove. The construction of the 2170000 Road, as proposed under Alternatives 3, 4, and 5, will require four crossings on tributaries to this stream, two of which are located approximately one-half mile upstream of the intake pipe. According to the DEIS (page 3-22 and C-6), culvert installations are proposed at all four crossing sites, with planned mitigation consisting of settling ponds, riprap and erosion control fabric, and timing of instream work to coincide with low flow conditions." AK-DGC-103

"As indicated above, situations that would require the capping of domestic water intakes should not be allowed to occur by the Forest Service, especially when reasonable alternatives are available to prevent the necessity of having to take this action. Despite the mitigation measures that are proposed to minimize the amount of sediment delivery during culvert installation, the fact remains that, no matter how stringent they are applied, sediment will be generated during excavation activities and would very likely be transported downstream to the water intake. The standard 48-hour variance that is provided in the Forest Practices Regulations for exceeding State Water Quality Standards during culvert installations should not be used where drinking water is a concern." AK-DGC-103

"Another mitigation attempt is to 'Propose to cap water supply intakes during construction in the Sunny Cove Watershed, if necessary.' (2-6) At what point does this become necessary? After water quality damage has already occurred? If this is meant as mitigation, it should be done as a preventative measure, not reacting to damage that has already occurred." TS-133

Response: The Forest Service does not anticipate any need to cap water intakes. If the need arises, the Forest Service will consult with downstream users. This was discussed with Sunny Cove residents (March 6, 2001) and will only be used as a contingency measure with notification and consent of the downstream water users.

iii. Streamflow

"We recommend that the EIS also discuss the impacts of harvest activities to the hydrograph and timing of flows in watersheds that serve as drinking water sources. We are concerned that harvesting could result in a faster hydrologic response and consequently greater overland flow, less storage (perhaps with more frequent periods of low or no flows), and a greater potential of erosion." EPA-167

"In addition to loosening soils, the road construction would also destroy natural mechanisms used to contain water. In an area that is famous for it's rainfall, loose soil and excessive water with no place to go make a dangerous combination." TS-133

"Road Card pg C-9 for road 2170000-2 which the first ¾ mile is located in the Drinking Water Watershed describes wetlands that will 'be unavoidable while providing access to the harvest units.' These wetlands, which occur on sideslopes and footslopes 'serve to store and transfer water to downslope resources.' (C-9). If the natural storage and see page systems are destroyed by this road construction (which the EIS says is 'unavoidable') the water will have nowhere to go but down, and it will go down fast. All of these details will undermine any mitigations that are used to try and maintain the integrity of Drinking Water Creek." TS-133

Response: The Final EIS and Addendum to the Floodplain, soils and Wetlands Resource Report for the Cholmondeley Project Area provides a discussion of potential changes to streamflow. The analysis shows no changes to streamflow.

The wetlands section of the Final EIS, in Chapter 3, discusses the effects of forest roads on wetlands. The study cited in the Final EIS describes effects of forest roads limited to within about 50 feet of the road. A more recent study by Master's student Katherine McGee (2000) found similar effects. The wetlands soil makeup and weather contributions in these studies are very similar to the wetlands in Drinking Water Creek. The wetland BMPs listed on the road cards are designed to maintain flow and circulation of waters in wetlands.

iv. High Flow / Low Flow

"At the present time you have NO studies showing high-water periods for this area. What may be a small creek in the summer is a raging waterway in the Fall, Winter, Spring or whenever extended periods of rainfall occur. As you state 'Control of road drainage will be critical as the road location parallels the stream and is within 200 feet of the stream for much of its length.' *How will this be monitored?"* SCT-93

Response: The 2170000 road traverses a watershed that is used for a private domestic water supply source for approximately seven private cabins located in Sunny Cove. The road is planned to cross four tributaries to the stream. Appendix G describes stringent mitigation measures that will be employed at these crossings.

The 2170000 road does parallel Drinking Water Creek for much of its length; however, the 200-foot distance given in the Draft EIS is an overstatement. According to the unit card which will be included in appendix 2 of the Record of Decision, the road parallels the south fork of Drinking Water Creek (by the small pond) within 200 feet for about 1,100 feet. Further upstream the road gets within 300 feet of the mainstem Drinking Water for another 1,100 feet. The road is located at the base of the slope, which is a more environmentally friendly location than on the steeper slopes further away from the stream.

Chapter 2 of the Final EIS describes the compliance monitoring plan for these streams.

b. Mariculture

Several people expressed concern for potential impacts of the project to existing mariculture sites in the area.

> *"...we are concerned about the potential for negative impacts on water quality associated with the mariculture operation and interference with the anchorage in Sunny Cove should a log storage area be proposed in the cove. We recognize that these sites will undergo separate ACMP review, but input early in the planning period may help avoid or minimize conflicts."* AK-DGC-103

> *"You also ignored, or misinterpreted, our comments that we depend on this water for our mariculture business. We grow our oysters in suspended trays which must be cleaned regularly to discharge the fouling. The water from our Drinking Water watershed provides the cleaning power. We must have our water during peak operating windows of April 1 to May 15 and October 1 to November 15 each year. Capping it off during this period would put us out of business. Roads would have to be constructed at other times."* SCT-93

> *"We would like to go on record saying that any floating camp in Sunny Cove is a direct conflict with out Mariculture permits and water certification which we have held since 1989. We want this restriction to be included in the Final EIS for Chomondeley Sound."* SCT-93

> *"..... our water source is also used for our Oyster business, we and the State of Alaska which issues our permits depend on having clean water for this business, if our water source is damaged in any manner we will lose time and money in order to conduct our business, or worse we will not be able to do our business."* RKA-130

Response: The Final EIS, Issue 3, states that most potentially negative effects to mariculture operations would be avoided by not building a road upslope of the operation. No road is planned for construction in these watersheds under any alternative. Thus, only minor effects to the mariculture operation would be possible from Sunny Creek (Watershed Report, project file).

Log ships have been traveling through Cholmondeley Sound for years. The detail of log storage and helicopter log drops are generally left up to the contractor and their permit application process with the State of Alaska and other Federal agencies. This occurs after timber sale contract award. Because of shallow water in Sunny Cove, log storage and helicopter water drops would most likely not be allowed in the bay. This conclusion is based on the assumption that other permitting agencies will enforce the mitigation measures for which they are responsible.

When the Draft EIS was prepared, the assumption was that there was a storage tank present, so capping the intake was meant to be a very temporary mitigation measure if some problem arose. We have since learned there is no storage tank, so the wording has been removed.

c. Scenery

One person expressed concern for impacts to the scenic beauty of the Sunny Cove area and the impacts harvest and road building would have.

> *"This area has given me so much; it deserves my concerns and protection. Four deceased members of my family enjoy this area eternally among the very trees that will be involved in this timber sale. I now have the ability to pass this place down to another generation. It is my hope that my young daughter will grow up knowing the beauty and serenity of Sunny Cove as I have."* TS-133

Response: The LTF and units have been designed to not be visible from home sites in Sunny Cove. Portions of units and the LTF will only be visible from the main body of Cholmondeley Sound. See Chapter 3, Issue 3, in the Scenery section for details of what would be visible from the sound.

d. Community Privacy/Security

Several people were concerned that roads built in the Sunny Cove area would attract additional people, which could lead to vandalism to private property.

> *"The DEIS proposes building up to 26 miles of new roads. Though none of the proposed roads would directly connect with the Prince of Wales road system, several road sections will be built within ½ mile of existing roads. All proposed roads would also be accessible by boat. Residents of both Sunny Cove and Saltery Cove are very concerned about increased access to their communities that roads will bring. The DEIS does not address how the Forest Service will prevent non-motorized access to homes and local resources, enforce motorized access restrictions and access violations, or how the agency proposes to exclude traffic from roads during the project operating years, or prevent workers from competing with resident users for area deer and other resources. In addition, the roads from Clover Bay will be open to motorized vehicles, effectively opening the sale area and exposing residents to outside competition and harassment."* SEACC-158

> *"Your draft also does not support your comments to us that the roads, if built, would be closed at the end of each season of use in some manner to curtail the use of them with motorized vehicles."* SCT-93

> *"An additional issue related to road construction is the 'irreversible' (3-83) access that you would allow to private homesteads. The residents have complained previously that the road would diminish privacy and security. ..... The roads would provide much easier access to their homesteads. ..... The residents have had the reassurance of knowing that they are safe and who is there with them. Unless they see a boat coming or an airplane land, they know they are alone. Road access ¼ mile away would destroy these assurances."* TS-133

> *"We are very concerned with your statements about the road being used for recreation and hunting, ...this was one of the largest problems we had with this sale, yet you tell us you will close the road so it can't be used during the fall and winter for motorized vehicles and then we read the exact opposite."* RKA-130

> *"You state the road system would likely be used by hikers and both sport and subsistence hunters from P.W.I and Ketchikan. Which is it? You have stated to us that you would block the road off in the winter so we wouldn't have to put up with this problem and it would protect are homes and property. This would take perhaps a locked gate plus blocking the sides so no access for 3 or 4 wheelers could take place."* RKA-130

> *".....concerns that need more work...Traffic on road when not in use by loggers. Vandalism to our homes. Hunting - shooting near and around our homes."* RKA-130

Response: Further discussion has been added to the Final EIS to address security risks. The National Forest is a system that is open to the public at all times. This fact makes it impossible to guarantee protection to private homes adjacent to its borders. A certain element of risk is associated with remote living as well a city dwelling. Forest users are usually the "eyes and ears" to let law enforcement know of any violations of forest laws (road closures). They will assist our normal patrols by law enforcement.

No roads exist within the project area. Proposed roads will not be connected to any existing roads. All roads will be closed to vehicular traffic after salvage and silvicultural activities are concluded. A hunter from Ketchikan would have to travel by boat 20 miles, hike several miles down a closed road which in a few years will be alder covered, randomly aim at a house in Sunny Cove a quarter mile away to shoot someone, or walk the extra quarter mile to vandalize someone. This is highly unlikely.

The Sunny Cove road would have additional use restrictions on the road during construction to increase public safety and address concerns of competition for subsistence resources. The IDT consulted with Forest Service law enforcement regarding which regulations apply to security concerns. Under 36 CFR 261.10, which applies to all NFS lands, the following are prohibited: (d) Discharging a firearm or any other implement capable of taking human life, causing injury, or damaging property as follows:

(1) In or within 150 yeards of a residence, building, campsite, developed recreation site or occurpied area, or

(2) Across or on a National Forest System road or a body of water adjacent thereto, or in any manner or place whereby any person or property is exposed to injury or damage as a result in such discharge.

e. Subsistence

Several people expressed concern for impacts to subsistence resources, including wildlife, fish, shellfish, and water:

> *"The creek has traditionally been the source of water for not only for my family but all Sunny Cove residents. Without a supply of potable water, you would be limiting the use of their land."* TS-133

> *"ANILCA Section 810 requires the Forest Service to analyze the potential impacts to subsistence users and needs. The DEIS reviews some of the area uses of Saltery Cove and Sunny Cove residents, but does not include all sources of food, such as berries, shrimp, octopus, shellfish, birds eggs, and more. The Forest Service has not done an adequate job meeting with and collecting subsistence use information from federally recognized tribes. Though Kasaan is the closest subsistence community, the Cholmondeley area is a customary and traditional use area for Metlakatla and Saxman residents."* SEACC-158

> *"Connected impacts on subsistence uses of the project area must be considered. The Tongass Tribe also includes the project area in its traditional and customary subsistence grounds. According to Forest Service and Alaska Fish & Game data, residents of Craig, Hollis, Hydaburg, and Ketchikan have historically used the proposed sale area for deer hunting. (See TLMP 1991, SDEIS and accompanying F&G surveys). Although the DEIS states no specific harm to subsistence opportunities due to the proposed Cholmondeley sale, the Forest Service never considered how subsistence needs on Prince of Wales Island will be filled as more and more high value forest becomes less productive due to development. More subsistence users will be crowded into fewer, smaller and less productive areas, competing and reducing opportunities for subsistence success. All of these, in turn, further compromise fish and wildlife habitat and reduce subsistence value. The DEIS must include an analysis of such cumulative effects in its discussion of impacts on subsistence."* SEACC-158

Response: See comments in previous subsistence sections. The Draft EIS evaluated the potential impacts (including fisheries resources) associated with all of the proposed alternatives. The Draft EIS did say "fine sediment would likely enter the stream in unit 614-001b during installation of log stringer bridges and hauling of rock and logs." Water quality is discussed in detail under Issues 1-3 in Chapters 1 and 3 of the Final EIS.

Native tribes and corporations were informed and consulted by various means during the NEPA process. Native tribes and corporations were sent scoping letters, an informational meeting on subsistence was held in Kasaan in October of 1999. A subsistence meeting was planned, announced, and held in Kasaan during the comment period. The draft cultural report on the Cholmondeley Timber Sale was sent to all POW tribes and others in November of 2000. POW tribes were informed of the project at their January 2001 meeting. Ketchikan Indian Corporation was briefed on the project in December 2000. The Draft EIS was mailed to all the Federally recognized tribes in the area. The Common Grounds meeting of many tribes also introduced the project in Craig. The comment period was open for the purpose of gathering more subsistence data. See chapter one for added wording to the text about public comments.

Wildlife models were run as the normal means for analyzing effects of harvest and roads on subsistence species habitat. Our deer models have shown that the deer population will decline but that it will remain above that which the Forest Plan recommends to sustain both wolf predation and hunters in WAAs 1212 and 1213, which constitute the majority of the project area. The deer numbers in WAA 1214 are predicted to drop below that which the Forest Plan recommends to sustain both wolves and hunters; however, this WAA is less than 1 % of the project. The wolf population and its trends are closely tied to the deer numbers. It is predicted that there will be enough deer over the majority of the project area to support both wolves and hunters. We do not anticipate a significant increase from Ketchikan hunters, particularly if roads are closed as proposed. The timber sale is anticipated to have little effect on the black bear population.

Subsistence questions were clearly asked in at least one meeting with Saltery Cove, Sunny Cove and Clover Bay stakeholders. Subsistence users were reserved in sharing details of their use area. Written comments have also been received during the comment period.

ANILCA Section 810(a)(2) envisions that agencies will receive additional input by holding "...a hearing in the vicinity of the area involved." Metlakatla and Saxman have never expressed an interest in additional government-to-government consultations.

Many comments regarding subsistence uses centered around saltwater activities. The Forest Plan places a one-thousand foot no-cut beach buffer on all shoreline. This will insure no disturbance of beach plants, clams and other beach subsistence uses. Riparian and other stream protection measures will ensure fish habitat/population protection.

Upland plants such as individual medicinal plants (devils club) will be impacted but these plants are common and populations will not be in danger. Berry plant populations should actually see an increase as harvesting would open up the canopy.

Log Transfer Facility (LTF) effects are covered in Appendix F and in various dive reports in the planning record. Short-term presence depending on the sale size, yarding methods and the log watering methods (varies per issue area) will limit the effects to a temporary displacement of the shrimp/crab fishermen. Selection criteria for LTFs include good marine flushing which will ensure quick recovery and only temporary effects.

Cumulative effects of wildlife populations were discussed in the subsistent section as deer model projections and discussion of other game species. With no major harvest planned in the foreseeable future and only 3% of the project area being harvested we don't see this project as significantly impacting the subsistence resources users from the surrounding area. See the subsistence discussion for Forest Plan data and use of the project area.

Harvest activities will not present a significant possibility of a significant restriction to subsistence uses. See the subsistence section in Chapter 3 of the final EIS for more details.

f. Wind Patterns

Some comments were concerned that timber harvest could reduce the amount of protection currently provided in local anchorages around Sunny Cove, or that timber harvest could change local wind patterns.

> *"Blow down is also a large concern, your own report contains information on concerns about these issues, what is being done about these blow down concerns?"* RKA-130

> *"The wind direction is stated wrong in the document, the prevalent wind direction for sunny Cove is S.E. not S.W."* RKA-130

Response: As any tree matures and becomes decadent there is a danger that it will fall down at anytime. Wind events are unpredictable. The normal disturbance pattern on the Tongass is gaps in the canopy due to blow down

of individual or small groups of trees. The wind issue is discussed under Issue 3 in Chapter 3. The road and associated units would be north of the cove. Prevailing storm winds come from the southeast or southwest. We do not anticipate effects on the anchorage.

A small helicopter unit to the southwest of the cove is proposed for group selections (small cuts) with remaining volume standing to break the wind. Another group selection unit is over the ridge and should not impact the wind patterns of the anchorage.

Major amounts of unharvested lands will remain as a buffer to the west, east and northwest of the residences. We will not impact the wind coming from the south, southeast, or southwest (the prevailing strong winds).

g. Log Transfer Facility

A number of people were concerned about the impact that a Log Transfer Facility in Sunny Cove could have on wildlife resources, marine water quality, commercial, sport and subsistence fishing, scenic views and the mariculture businesses in the project area. Several comments were in reference to LTFs in general. Those comments and responses are included in the Saltery Cove LTF section (4.f).

> *"In regards to the LTF site in Sunny Cove (CHOM#1), there are issues as well. I have seen a prior dive study of that area. Large deposits of bark are noted with damage already done to the aquatic ecosystem. This is confirmed by your EIS.* 'Site Chom#1 was the site recommended by F&WS, this recommendation comes form the fact that the marine habitat has already been affected by previous activities' *(F-3) As well as* 'Chom#1 is a proposed site that has been previously affected by bark deposits.' *(F-4) The interesting thing is that this sight was not a previous LTF as one might deduce from the large amount of damaging bark deposits. Residents have been concerned regarding over-logging in this area for years. These bark deposits had to come from other logging operations in the area."* TS-133
>
> *"As you may or may not be aware, our Operating Permit [mariculture] contains a water certification for this area. This area was certified in 1989 and undergoes yearly recertification. The Clean Water Act is very important to the success of our business. An LTF just east of Sunny Point causes us great concern because of its location to our outside sites 2 and 3. The prevailing wind direction is SE in this area. Southeast blows right into our cove. Contaminates such as spill fuel, sewage, silt and/or excessive bottom bark build up could put all of our permits at risk."* SCT-93
>
> *"... you have stated this will be operated under permits, this is true but no one ever checks for violations or even normal operations..... We feel the LTF for Sunny Cove has not been addressed to our satisfaction."* RKA-130
>
> *"The AFA takes issue with the presumption on page F-3 of the DEIS that the Chom #1 site is already impacted by previous activities. There is not a '1 meter deep' deposit of bark on the bottom as indicated in the USDI and F&WS Field Investigation Report and the AFA does not believe that any log rafts have been stored in this area in the past. Regardless, we offer two options for re-siting the LTF for the Sunny Cove units.*
>
> > ***Option 1****. The LTF in Cholmondeley Sound designated Chom #1 should be replaced with a temporary barge-loading site near the section corner ¼ mile NW of the private land holding in Sunny Cove. The access road from this site could follow in a northerly direction along the eastern boundary of the excessive stream buffer indicated for the small stream near this site. The proposed location and rough road route are sketched on the attached map segment.*

Option 2. The Forest Service should consider designating a road from the Polk Inlet area through the Rock Creek saddle to access the timber in the vicinity of the West Arm of Cholmondeley Sound and the timber in the vicinity of Sunny Cove. The road could be located high (around 1,000 feet elevation) up the hill where there is a decent bench. The road would drop down gradually to intersect the 217 road system near Unit 675-030 behind Sunny Cove. The Polk road is already into the Rock Creek pass. There would be only a couple of tough road building spots, but the road would be limited to summer operations because of the high elevation and the adverse haul. The savings from being connected to the POW road system and the ability to cable yard (rather than helicopter) much of the timber west of Sunny Cove along the West Arm of Cholmondeley would offset the added road construction and haul costs. The USFS should include an access to the beach somewhere in Cholmondeley Sound from the POW road system. The current helicopter units in the West Arm should be reconfigured to accommodate cable logging if this option is chosen." AFA-157

Response:

The feasibility of a barge-loading site inside Sunny Cove itself was considered during the reconnaissance process. The LTF itself would have exceeded the visual impact of the area designated as Modified landscape in the Forest Plan due to the topography of the uplands. The existing permitted mariculture operation within Sunny Cove would not be conducive to log barge and tug traffic and the possible effects on water quality associated with LTFs. The LTF location proposed in the Final EIS has the least impacts on all resources.

The dive report done by USDI FWS is the only known report on record for this site. If there is a report that was previously done at this site we would appreciate a copy being sent to us. There has never been a log transfer facility at this site nor is there any record of log storage in the area. The guidelines for LTF siting prefer sites already affected by bark rather than affecting additional areas.

h. Site Specifics

Several comments concerned site-specific issues such as units or roads:

"Unit 675-033: This unit contains an estimated 18 acres of slopes over 72 percent gradient. According to the Rationale for Timber Harvest on Some Slopes Over 72 Percent (DEIS, page 3-66), 'Landslide potential is high in this area; however, the resources at risk downslope do not include perennial streams.' However, according to the unit card, the Class I mainstem of Sunny Creek is located approximately 300 to 400 feet downslope of the lower unit boundary. In addition, five other Class I streams that are tributary to Sunny Creek occur between it and the unit, all of which are capable of being impacted by landslides originating within the unit. Consequently, the 18 acres of slopes greater than 72 percent should be deleted, and the unit separated into two sections, with helicopter yarding above and cable yarding below these steep slopes. In addition, no Reasonable Assurance of Windfirmness zone is prescribed for Stream #4 (which bisects the unit), despite the fact that this area has a high windthrow risk. Such a zone must be added to minimize the potential for blowdown within the buffer of this Class III tributary to Sunny Creek. Taking these measures would better ensure that the productive fisheries values of Sunny Creek are maintained into the future." AK-DGC-103

Response: A soil scientist reviewed Unit 675-033 on the ground. The slope stability investigation is documented in Appendix A of the Floodplains, Soils, and Wetlands Resources Report on the Cholmondeley Project Area. The documentation says in part, "Slope stability concerns were identified on two acres in the vicinity of GPS point 39 (just north of stream 4). Landslide potential is high in this area." Landslide potential or mass movement index on the Tongass National Forest falls into one of four classes, low, moderate, high, and very high. Areas of very high mass movement index are not included in the tentatively suitable land base. Appendix

A of the resource report does indicate some special concern with this two-acre area, and goes on to describe the downstream resources at risk. This area of concern is located low on the slope, about 250 feet upslope from the bench on which the road is located. If a slide should occur in this area, it will terminate on the bench. Stream 3 is downslope of this area. Stream 3 is a class 4 flowing into a class 1 tributary to Sunny Creek. The fisheries section on the unit card correctly describes the unstable area around the class 4 portion. Again, if a landslide occurs in this area, it will be a small slide less than one-half acre in size and will terminate on the bench, most likely at the road. It is very unlikely that a slide in this area would reach class 1 habitat or degrade water quality.

Unit 675-033 is already split into a cable yard setting and helicopter yard setting, as suggested in the comment. Almost all of the slopes over 72 percent gradient are in the helicopter yard setting.

7. Economics

a. Timber Sale Viability

Several people expressed concern about the economic analysis, including the validity of numbers used, the high cost of helicopter yarding, and the perceived impracticality of alternatives 2 and 3.

> *"While I believe that helicopter logging is applicable in some areas, I realize that method can be very pricey. I believe the Forest Service should officer a timber sale with sound economics so that the U.S. Treasure, the purchaser and local manufactures all 'win'."* DW-105

> *"The DEIS is unclear and misleading in its presentation of sale economics. On page 3-31, table 3-3 gives a Public Investment Summary using a high market Net Stumpage Value. In the case of the preferred alternative (#5) this is $210 per mbf. Under that scenario the Present Net Value for alt. 5 is a positive $5,036,556.00. Missing in the Chomondeley DEIS is a similar table showing the negative Present Net Value of 1.6 million dollars that would result from a low market Net Stumpage Value of $20 per mbf for Alternative 5. This, given the recent history of markets for Tongass timber and current economic trends both here and abroad, is by far the more likely scenario."* FCC-141

> *"The primary drawback of helicopter logging appears to be economic, although it is not clear if the avoided costs of road construction are considered in calculating net economic benefits. According to the DEIS, present net value of the timber included in alternative 2 is estimated to be deficit by over $9 million. Because costs for logging by helicopter vary by unit (depending largely on length of haul distance), as do financial benefits (depending largely on timber quality), by including the entire unit pool, without regard to economics of individual units, Alternative 2 produces a very high deficit net value. Since most of the units were not designed for helicopter logging, it follows that they are not economical to log by helicopter. Table 3-4 (DEIS) page 3-32 lists units that range in cost from $300 to over $1,000 per thousand board feet to log by helicopter."* USDI-97

> *"All action alternatives in this DEIS would authorize logging levels and extensive road building that are too expensive – in effect, this sale will marginalize small-scale operators who participate in the Forest Service-sanctioned small and micro-sales programs. Despite the need for and established process to develop small timber sales, this sale configuration would wholly exclude these businesses from participating in this sale. In contrasting the flat market for large sales off the Tongass (over 333 mmbf currently under contract but not cut, and 59 mmbf on the shelf) against the highly successful micro-sales program which has sold and cut nearly 100% of the sales offered, it is clear that this sale is not configured to respond to existing market demand for Tongass timber. The Forest Service should recognize that continuing to offer large sales on Prince of Wales does not create local jobs."* SEACC-158

"The DEIS does not contain reliable low and high market net stumpage value estimates; therefore it is impossible for reviewers to evaluate either the relative or absolute feasibility of the various alternatives." SCS-142

"Helicopter logging can be very expensive and not cost effective in every timber sale. Although I support H-logging, the Forest Service must offer a timber sale with sound economics and that benefits the US Treasury, the purchaser, and local manufactures." TW-102

"The Forest Service should offer a timber sale that makes economic sense. I support a timber sale that allows conventional harvesting methods that can result in affordable logs for our local mills." EB-135

"C.A.R.E. supports the preparation of those timber sales that result in the opportunity for the purchaser to make money. Sales must be economical. It is noted from the DIES that helicopter logging is one method of logging proposed, it is also noted that this method of logging costs approximately twice that of cable logging. Helicopter logging while a valid yarding method must be limited to only those areas where necessary to manage the resource and to harvest the timber. The Forest Service must offer timber sales that are economical and capable of being harvested with the purchaser making a profit." CARE-161

"The USFS's rationale for needing this sale given the volume of round logs still being exported from SE Alaska is very weak. Large-scale timber interests have had several decades to develop a sustainable industry on the Tongass. Instead of developing small, diverse value-added wood processing ventures that more closely mimic pre-1950 historical harvest volumes, the industry has chosen an over-optimistic harvest schedule that could only fit with large pulp mills, sawmills, or round log export. Attempting to continue feeding such an oversized and ravenous industry in order to attain competitive volumes in a world wood market is a lesson in futility and destroys the valuable rural nature of SE Alaska." SW-156

The Chamber supports the design and layout to timber sales that result in the opportunity for the purchaser to make money. Sales must be economical. It is noted from the DEIS that helicopter logging is one method of logging proposed, it is also noted that this method of logging costs approximately twice that of cable logging. Helicopter logging while a valid yarding method must be limited to only those areas where necessary to manage the resource and to harvest the timber. The Forest Service must offer timber sales that are economical and capable of being harvested with the purchaser making a profit." KCC-166

"The forest products manufacturing focus in Southeast Alaska is changing, and manufacturing facilities in the Ketchikan area are among those leading the way to a new era. The new focus features the manufacture of specialty products, including window and doorframe components and veneer for the production of engineered wood products such as laminated veneer lumber. ...The production of dried and dressed lumber and an increase in the output of cedar lumber are also currently under consideration by the industry. The Chapter supports these efforts by local manufacturers to increase local industrial employment by targeting growth markets, and urges the Forest Service to consider the importance of supplying these companies with an economical supply of wood through projects such as the Cholmondeley project." SAF-134

"The [Ketchikan Gateway Borough] urges the Forest Service to offer as much economically feasible timber as possible from each of the three groups of harvest unites identified in the Cholmondeley DEIS." KGB-136

"Cedar, however, is exempted from the requirement for primary processing in Alaska, and is typically shipped elsewhere in the round." SCS-142

Response: See response under the "Alternatives" response section (3.a) which explains how alternatives were developed to respond to specific issues. The balance of resource use necessary to maintain a viable economic and

social environment is not established at any one level in forest planning. Rather, the process begins with long-range planning at the national level, and continues down through the regional and forest levels to the project planning level. The Cholmondeley EIS is a project-level analysis. It does, however, implement direction provided at higher levels of planning.

The Forest Plan EIS includes a comprehensive analysis of the economic and social environment in Southeast Alaska, the Tongass National Forest, and the communities within these areas. The Economic and Social Environment section of the Forest Plan EIS includes very detailed information on industries directly dependent upon the Forest, including the timber industry and the recreation and tourism industry. This information includes, among other things, 1995 employment data, baseline employment levels projected for the year 2000, and estimated employment and income levels under each alternative considered in the EIS. The Forest Plan EIS also discusses the potential effects of each alternative on various communities within the Tongass. The EIS concluded that employment in the recreation and tourism industry was expected to increase moderately, and about the same amount, under all alternatives during the first decade, while timber industry employment was expected to decrease under the majority of alternatives. The Cholmondeley project was designed to implement the Forest Plan, and the EIS prepared for the Cholmondeley project tiers to the analysis in the Forest Plan EIS.

With regards to the Cholmondeley project specifically, the Forest Service Manual (FSM 1970.6) states, in part, that "the responsible line officer determines the scope, appropriate level, and complexity of economic and social analysis needed." The Cholmondeley project is a timber sale project, and was proposed to respond to the goals and objectives identified by the Forest Plan for the timber resource and to help move the project area towards the desired future condition identified by the Forest Plan for the lands within the timber production and modified landscape LUDs.

Figures used for the high and low selling values are representative of values when market conditions were at recent highs and lows. Numbers taken from nearby recent sales do represent a relatively close approximation of the species breakdown of the project area. Results of our financial efficiency analysis are meant to only be relative comparisons across alternatives, not exact expected selling values. When the sale appraisals are prepared just prior to the offering of the sale package, more exact inventories, (cruise data), and more exact selling values will be used depending on the market conditions at the time. The sale would at that time be offered to perspective bidders who would speculate according to market conditions. The sale will only be sold if a profit can be realized. The Cholmondeley Final EIS has been divided into five logical sale offerings of moderate size to allow for economic road-building and logging in individual sale packages.

An effort is made to use helicopter logging only as an option when resource damage or effects on the human environment (visuals) would not be acceptable with a cable yarding system. Costs at time of contract preparation would be looked at very closely, and as many adjustments as possible will be made to ensure sale viability.

Cedar export permits are dealt with on a case-by-case basis and approved at the Regional Forester level. Permits are based on the availability of local markets. Mills around southeast continue to cut cedar; however, and we can assume that a portion may not be exported exported. See the “Cedar Harvest” section in Chapter 3 of the Final EIS for an explanation of markets.

Data on jobs per thousand board feet comes out of the Forest Plan and are averages derived from data from the 1990s and are meant to be used for alternative comparison purposes.

The NEPA Economic Analysis Tool (NEAT) analysis and the high and low market analysis are both explained in chapter 3, Issue 4, of the Final EIS.

b. Non-Timber Economic Values

A number of comments question the socio-economic value of timber harvest compared to the economic benefits of an intact forest:

> *".....ADF&G requested analyses of the economic value of wildlife to both hunting and tourism. We indicated that these should include dollar value estimates for tourism, fishing, subsistence, and other activities on the forest, and referenced Shea (1990), 'Impacts of development on the non-hunting wildlife-oriented businesses of southeast Alaska.' These analyses were not included in the DEIS."* AK-DGC-103

> *"This area, with exceptionally high quality habitat for species such as marten, goshawk, deer, and wolf, must remain unmolested. The non-timber economic values of the project area are far greater than the marginal short-term gain of logging."* JCS-152

> *"...I submit that the long term recreation and ecosystem benefits far outweigh the short term economic benefits. The economic benefits are local whereas the recreation and ecosystem benefits have a regional, national and even international benefit."* JL-128

> *"In this sale, a higher logging level will only result in exporting more jobs, while the region bears the cost of impaired resources and lost non-timber economic opportunities. Without requiring primary processing for cedar, the Forest Service cannot justify using the 3.33 sawmill jobs/mmbf factor, and cannot include secondary benefits to supplier/service communities in its cost-benefit calculation."* SEACC-158

> *"Make no mistake, this business, the 30 seasonal and 8 full time employees, and the financial contributions it makes to the local economy will be seriously at risk if this sale proceeds as outlined in the draft EIS. And to what end???"* LGM-122

Response: See previous response on timber sale viability.

With regards to the Cholmondeley project specifically, the Forest Service Manual (FSM 1970.6) states, in part, that "the responsible line officer determines the scope, appropriate level, and complexity of economic and social analysis needed." The Cholmondeley project is a timber sale project, and was proposed to respond to the goals and objectives identified by the Forest Plan for the timber resource and to help move the project area towards the desired future condition identified by the Forest Plan for the lands within the timber production and modified landscape LUDs.

The Forest Service is not required to quantify the non-market benefits and costs associated with every timber sale (tier to the Forest Plan economics). However, the Forest Service is required to insure that unqualified environmental amenities and values are given appropriate consideration in decision-making, along with economic and technical considerations. The Cholmondeley Final EIS analyzes the potential effects of the project on unqualified environmental amenities and values such as water resources, recreation and scenery, wildlife, and subsistence.

Because of the new Forest Plan standards and guides for visuals, structural retention, and mitigation measures proposed, long-term effects would be minimum to lodge businesses. See the lodge business discussions in Issues 1 and 2. The harvest proposed is minor compared to private harvests in the distance to the north and south.

This area is not exceptional habitat for wildlife. However, much of the habitat and most of the recreation potential will remain the same due to the fact that over 50% of the project area will be designated as old growth reserve, the roadless area will be reduced by a maximum of 9%, and only 3 % of the project will be treated. The economic value of the wildlife is indirectly included in the dollar value of the lodge businesses. Hunters and trappers will most likely view the increased access that the roads provide as a positive effect. Subsistence testimony opposes road building because of impacts to water.

Data on jobs per thousand board feet comes out of the Forest Plan and are averages, not absolutes. They are meant to be used for alternative comparison purposes.

The risk estimates for effects on local recreation jobs is discussed under lodge business in Issues 1 and 2. It is very difficult to predict the exact number of jobs that could be impacted. See the comment responses under lodge business 4c. and 5c. These impacts should be temporary during the operation of logging equipment.

c. Timber Supply

A number of comments question the need to seek to meet market demand as identified in section 101 of the Tongass Timber Reform Act:

> *"The Forest Service's policy to maintain a three-year supply of timber is a matter within the agency's discretion. Further, the Forest Service's three-year timber supply pipeline policy is consistent with the revised TLMP. It does not change or affect the application of standards and guidelines, land use designations or other objectives and directives of the revised TLMP. Moreover, maintaining a three-year supply of timber does not violate the market demand provisions of TTRA §101. Rather, it is based on the annual and planning cycle demand analyses which the Forest Service is* required *to conduct pursuant to TTRA §101."* AFA-157

> *"Furthermore, the larger the volume a project in the Cholmondeley area offers, the more likely it is that the Tongass National Forest will be able to meet the market demand for timber from the forest both for the annual sales program and for the planning cycle as required under § 101 of the Tongass Timber Reform Act."* AFA-157

> *"The market demand for Tongass timber has been declining and continues to sink. The Forest Service currently has a backlog of approximately 333 mmbf of timber sold but uncut. ..... In addition, current information shows that there are 59 mmbf of timber on the shelf, and available to operators. ..... The DEIS is inadequate because it failed to disclose the backlog of Tongass timber, and address why the Forest Service persists in offering timber to a sunken market."* SEACC-158

> *"The Forest Service's January 19, 2001 stand exam analysis estimates that about 40% of the timber offered from Cholmondeley is hemlock. The international hemlock market is currently oversupplied and hemlock exports "have collapsed their own market value by the record-breaking low sales prices" (see attached Pacific Rim Wood Market Report, June 2000)."* SEACC-158

> *"The agency's conclusion that more timber from the Tongass is needed now to supply an overly saturated and price-depressed market is simply unreasonable. Instead of preparing and offering below-cost and deficit timber sales from Roadless Areas with extremely high value existing uses, the Forest Service should be investing its scarce resources in offering small sales to local operators off the existing road system."* SEACC-158

> *"Many Tongass sales have gone unsold or had trouble recently. Market demand for Tongass timber at fair market prices is extremely low. No evidence to suggest otherwise is presented. Gateway Forest Products is also on the verge of defaulting on its loans. There is not a 'Need'."* JM-114

> *"Further, I believe that the Forest Service should make maximum utilization of timber sale opportunities in areas of the Tongass that are designated Timber Production and Modified Landscape by the recently revised Tongass Land Management Plan so that manufacturing facilities in Ketchikan and elsewhere in Southeast Alaska have an opportunity to purchase sufficient timber to meet their manufacturing needs."* DW-105

> *"In spite of the significant downsizing of the available timber base on the Tongass through the multiple processes including the Tongass Timber Reform Act, TLUMP and the Roadless Rule, the Cholmondeley area is unique in that it remains in land use designations allowing timber harvest and management for future rotations of timber. The NEPA process should not be used to further erode the raw material supply*

required to meet market demand. The final decision should provide the maximum allowable timber sale quantity from this area." CAC-106

"In the past year, over 2 million Americans have asked for roadless areas to be protected from logging and roadbuilding. Those comments mentioned the Tongass specifically. The American people have made it very clear in the largest public response ever to a proposed rule that we want NO MORE LOGGING IN ROADLESS AREAS on the Tongass." LA-127

"There are plenty of other sources of timber to meet the market needs. This sale is not necessary. Private land timber sales are more than adequate to meet the dwindling need for timber in this area. How is it possible to dismiss the current need of this area to remain a recreational area? How can it be thought that the two uses can coexist?" BM-115

Response: The Cholmondeley project responds to a number of goals and objectives identified in the Forest Plan, one of which is to provide a timber supply sufficient to meet the annual and planning cycle market demands for Tongass National Forest timber. Timber demand tends to be dynamic, with prices fluctuating up and down in response to local, regional, national, and international market conditions.

Timber demand is addressed in the Forest Plan and in Appendix A of the Cholmondeley EIS. The Cholmondeley project is one of many timber sales on the Tongass intended to help meet public demand for wood products. Actual demand projections and mill capacity are beyond the scope of this project. The alternatives considered for this project all have an associated outcome in terms of board feet available to the timber industry. Those outcomes are based on what the project area can support, not on what the exact demand or installed mill capacity is.

Appendix A describes in detail the market demand, the documents and laws that direct that process, steps of the sale process (pipeline), how timber sale projects are located, and how the 10-year plan implements the process. It is not uncommon to have sales "on the shelf" while markets are interpreted and speculation is occurring.

The Forest Plan, through scientific committee, has gone to great lengths to set aside "non-harvest" areas for protection of the viability of all species and the sustainability of resources. Protection of wildlife habitat mainly involves the protection of Old Growth. A reserve system is made up of non-development LUDs, a network of small medium and large Old Growth Reserves (OGRs), and protection of small islands. The other component of the conservation strategy is the retention of structure within cutting units (Marten and Goshawk guides). Riparian and beach buffers also set aside a tremendous amount of land in high volume, high quality habitat, in highly visible areas with the highest probability of potentially historical sites. The above guides constrain us to a limited suitable base to harvest from. The proposed action would harvest about 3% of the project area.

NEPA is used to disclose the effects of alternatives to the proposed action. The standards and guides of the Forest Plan guide our management in the protection and supply of resources. Trade-offs are disclosed in the different alternatives and in the OGR options displayed. During the planning process fall-down of volume normally occurs when units or portions of units have to be dropped because they do not meet Forest Plan standards and guides for resource protection. In weighing the risks, the decision maker has to decide what trade-offs and mix of resources are best.

Through application of standards and guides of the Forest Plan, the mitigation measures, Best Management Practices, plus the additional buffers and standard practices, recreation and timber can co-exist even in a timber development area (TM LUD).

Hemlock markets have recently been experiencing extremely low prices. Market fluctuations and cycles are accounted for in the NEAT analysis; however, markets only at the time of sale bidding will determine the feasibility of the sale. Pipeline supply is explained in Appendix A of the Final EIS.

8. Roadless Character

Many people expressed concern over how roads and facilities would affect other resources and uses in the project area. A number of people were very concerned about the impact that road construction could have on wildlife resources, water quality, scenic views and the roadless characteristics of the project area. Others felt that roads are compatible with management of the area and road construction would keep overall costs of logging down. Many people felt that there are ample roadless areas on the Tongass and road development should continue in locations that allow development. Several people commented on the method the Forest Service used to measured the impact to the McKenzie Roadless Area:

> *"Construction of additional roads in the project area is also a concern under the ACMP. Road networks can lead to negative effects on wildlife populations as a result of increased access and increased secondary effects such as non-point source sediment loads in surface waters. We are concerned about the proposal to construct up to 26 miles of road in a currently unroaded area for a one-time entry for timber harvest. We are also concerned about the ability of the FS to maintain a remote system such as that proposed to the standards required under the Alaska Forest Resources and Practices Act and Regulations (e.g., 11 AAC 95.315)."* AK-DGC-103

> *"New roads will destroy this area's valuable wildlife habitat and degrade its existing water quality, which have already been damaged by past logging on surrounding private and national forest lands."* CW-40

> *"Please do not allow roadbuilding in the Cholmondeley area. Prince of Wales is extensively logged now. Remaining intact areas should be left for future generations to log or use as they see fit."* SB-39

> *"New roads in the Cholmondeley area will destroy wildlife habitat, intensify hunting pressure and degrade the area's existing water quality. Instead of wasting taxpayer money to build roads that temporarily benefit only a few, the Forest Service should put Alaskans to work fixing failed logging roads and damaged fish habitat."* JR-72

> *"This area is the second largest unprotected roadless area on Prince of Wales Island and should not (be) logged."* JR-72

> *"The success and stability of all residents and businesses involved in the Cholmondeley Timber Sale area rely completely upon the current pristine, roadless environment."* DSA-65

> *"Even though certain areas within the Cholmondeley project are designated as roadless, the Roadless Policy stated that all Tongass timber sales with a DEIS published before the final Roadless Policy would be carried out. The timber sale should be offered in a manner that will allow sound economics to prevail. Helicopter logging is fine, but expensive. Standard logging methods have a better chance of bringing the timber sale to a profitable conclusion for the Federal treasury and the local manufacturers of wood products."* JVD-126

> *"The very last thing POW needs is an additional 26 miles of road. The Forest Service has already conclusively proven that it isn't capable of constructing culvert crossings that allow safe fish passage. Therefore, the possible 62 stream crossings proposed by the Action Alternatives must be viewed as reckless and irresponsible management of riparian habitats."* JK-165

Response: The potential effects to wildlife are discussed under the wildlife section in Chapter 3. We anticipate no significant effects to wildlife habitat.

Road effects to water quality are discussed under Issues 1-3 in Chapter 3. Use of Best Management Practices (BMPs), and additional mitigation measures (i.e. monitoring plans), will limit the effects on water quality.

The subsistence section in Chapter 3 discusses the potential increased use of the area by hunters. Closing roads (physically and by closure order) after silvicultural surveys are concluded will limit any increased use of the area. This increase will not have significant effects.

Through unit design, mitigation measures, silvicultural systems with structure retention, and standards and guides (buffers), we will minimize the effects to the roadless character.

Water quantity in any given watershed should not be significantly impacted by road construction.

In order to meet direction of the Forest Plan and Tongass Timber Reform Act (TTRA), timber market demands need to be met. All development LUDs need to contribute to the pool. This means new roads will need to be developed. There is not enough volume adjacent to existing road systems to meet market demands.

The less expensive yarding system will be used whenever protection of resources can be assured.

Over 90 percent of the McKenzie Roadless Area will continue to meet the roadless definition after implementation of the activities. Opportunities will still exist for recreation since only 3 percent of the project area will be harvested. In the context of the entire forest, only 2-4 percent of the 16.8 million acre Tongass National Forest will ever be harvested. Analysis done for the Supplemental Environmental Impact Statement to the Tongass Forest Plan shows that the McKenzie Roadless Area would retain a high Wilderness Attibute Rating of 22.

The U.S. Army Corps of Engineer (COE) has regulatory authority over the discharge of dredged or fill material into waters of the U.S., including wetlands, and is responsible for determinations under Section 404 of the CWA. Section 404(f)(1)(E) of the CWA provides that the construction or maintenance of forest roads for silvicultural activities is exempt from regulation under the Act, provided the roads are constructed and maintained in accordance with the BMPs to ensure that the flow and circulation of navigable waters are not impaired, that their reach is not reduced, and that any adverse effects will be minimized. Clearly isolated road systems that will be closed (Clover Bay road changed in the Final EIS to total CFR closure) provide the silvicultural purpose under the 404 exemption.

Today's road-building standards and Best Management Practices for stream crossings will ensure fish passage. Planned road closures include removal of culverts, which will mitigate road maintenance problems in the future.

Recent correspondence with The COE provided additional comments on the Draft EIS for the project (a copy of the COE letter is available in the planning record). Because of the change to close the Clover Bay road after silvicultural surveys are complete, they have granted exemption of the 404 permit.

9. Transportation/Access Management

> *"Road No. 2180000-1: Fish Passage is also of concern for two of the three streams that are crossed by this road segment. Specifically, the Stream Crossings section of the road card indicates that the alignment crosses a Class II stream at milepost 0.20 where the stream gradient is 10 percent, and a Class I stream at milepost 0.75 where the stream gradient is 5 percent. 36-inch culverts are proposed at both crossing sites. However, these structures will not be capable of maintaining upstream fish passage, particularly the CMP that is proposed at milepost 0.20 where the gradient is 10 percent. Therefore, as with the crossing on Road No. 2170000-2, temporary log stringer bridges or similar structures must be used at these sites to provide for efficient fish passage and to comply with the requirements of AS 16.05.840 and the 404(f)(1) exemption."* AK-DGC-103
>
> *"Road No. 2180000-3: Fish passage may also be of concern at three culverted Class I stream crossings located at mileposts 0.10, 0.18, and 0.26 where the stream gradients are 5,5, and 6 percent, respectively.*

However, given that these are Class I anadromous streams, ADF&G will have the opportunity to review the crossing structure plans to determine if fish passage will be maintained." AK-DGC-103

"By the Forest Services own estimation there is an 8.4 billion dollar back log on road maintenance alone. The 8.4 billion does not include the cost to refurbish stream beds, wildlife habitat areas, land erosion, and who only knows what else. Who is ultimately going to pay for over a century of mismanagement of public lands? How can public lands be at least partially restored to pre extraction status?" ML-5

"Building roads, especially on hazardous slopes, will increase the risk of slides, degrade the streams and have an adverse impact on fish and wildlife. It's our understanding that none of the proposed roads will even connect to an existing network." PDK-59

"26 miles of new roads on slopes in some places greater than 73% grade and over so many streams in the midst of a roadless area will threaten the viability of that forest. Wildlife will be at risk. The tourist, fishing trade will be at risk." RMF-77

"To qualify for the "forest roads" exemption, the Forest Service must also assure that road building activities are conducted in accordance with Best Management Practices (BMPs). The agency must establish that the BMPs will "assure that flow and circulation patterns and chemical and biological characteristics of the navigable waters are not impaired, that the reach of the navigable waters in not reduced, and that any adverse effect of the aquatic environment will be otherwise minimized." See 33 U.S.C. § 1344(f)(1)(E); see also 33 C.F.R. § 323.4(a)(6)." SEACC-158

"Appendix C (Project Road Cards) designates recreation as "accepted" for most roads and harvest units (includes hikers, bicycles and often ORV's). Where listed at all, motorized vehicles are "discouraged" and recent communication with USFS (Landwehr, pers. comm) has advised that even stricter measures would be taken with regard to use by motorized vehicles (i.e. road closure after harvest in many cases). Therefore DA authorization for road construction would not be required." DA-COE-169

"The Forest Service should consider designating a road from the Polk Inlet area through the Rock Creek saddle to access the timber in the vicinity of the West Arm of Cholmondeley Sound and the timber in the vicinity of Sunny Cove. The road could be located high (around 1,000 feet elevation) up the hill where there is a decent bench. The road would drop down gradually to intersect the 217 road system near Unit 675-030 behind Sunny Cove. The Polk road is already into the Rock Creek pass. There would be only a couple of tough road building spots, but the road would be limited to summer operations because of the high elevation and the adverse haul. The savings from being connected to the POW road system and the ability to cable yard (rather than helicopter) much of the timber west of Sunny Cove along the West Arm of Cholmondeley would offset the added road construction and haul costs. The USFS should include an access to the beach somewhere in Cholmondeley Sound from the POW road system. The current helicopter units in the West Arm should be reconfigured to accommodate cable logging if this option is chosen." AFA-157

Response: Much new roadless explanation has been added in Issue 5 of the Final EIS and will be included in the Record of Decision. Over the past several years the Forest Service has been working to assess and correct deferred maintenance concerns by performing detailed road condition surveys and by using numerous sources of funding to correct the backlog of deferred maintenance items. This includes activities from upgrading roads to decommissioning roads.

Upon completion of silvicultural activities the roads will be closed and put in a storage capacity. The storage of roads involves providing a self-maintaining system consistent with road management objectives (RMOs). These activities will be funded through collections from timber sale activities or be a part of the close out of the timber sale. Monitoring of the system continues until the road is totally decommissioned. This process will keep newly constructed roads from becoming part of the deferred maintenance backlog.

Only administrative traffic will be allowed. Upon completion of silvicultural activities, all roads will continue to be closed to motorized vehicles and will be put into storage with all drainage structures removed, roadbed stabilized and all areas of exposed soil, including the roadbed, seeded to minimize erosion potential.

The road card cited in the comment above also states that "stream not checked for fish, need to verify class after final road location complete." If fish are present, then the road crossing design will accommodate fish passage as required by Forest Plan standards and guidelines. Most likely a log stringer bridge or similar structure would be used if fish presence is confirmed at the final road crossing location.

The road cards that were cited in the comment also stated that the "culverts would be oversized and buried 1-2 feet." Burying of oversized culverts allows for substrate to fill in the bottom of the culvert and allow for a natural stream bottom very similar to the downstream and upstream stream reaches. This type of culvert installation is commonly used to accommodate fish passage. Stream crossings requiring fish passage will have the structure design reviewed by a fisheries biologist, hydrologist and engineer.

The unit cards and road cards in the Draft EIS listed specific mitigation measures proposed to protect water quality and prevent landslides. The final road cards will be included with the record of decision and contain all the final mitigation measures and updates from further discussions with the State of Alaska and other agencies on how best to protect the water quality. None of the roads will connect to the existing transportation or road network.

The Best Management Practices listed in 33CFR 323.4 (a) (6) will be followed. The 33 CFR BMPs that apply to each road segment are listed on the road cards in Appendix C of the Draft EIS.

A reconnaissance report written by Dennis Landwehr (soil scientist) is included in Appendix A of the Floodplains, Soils, and Wetlands Resources Report for the Cholmondeley Project Area, and is summarized in the Final EIS. The report states that road construction north of Monie Lake, "May not be the most economically viable option". Alternative 4 does not include harvest units north of Monie Lake. Alternative 4 was analyzed in the Final EIS.

Sections of roads on side slopes exceeding 67% are indicated on the road cards in Appendix 2 of the ROD. There are minimal areas of steep slope road construction on this project. Areas of road construction on steep side slopes will require full bench end haul of excavation as required in the BMPs.

Temporary log stringer bridges will be used for drainage structures in all watersheds to eliminate any sediment caused by instream activity involved in culvert installations. Temporary log stringer bridges may also be used in areas where there are numerous different timing restrictions overlapping that can cause road construction scheduling conflicts to a point that it is nearly impossible to construct a section of road. For example there may not be any activity allowed on timber sales during the June 15 – August 15 time period, as that is when most of the fishing lodge guests are using the areas in and around the timber sales. The June 15 – August 15 dates are also the dates that instream work is allowed to take place in fish habitat streams. In order to satisfy both timing concerns, a log stringer bridge or other bridge may be used to avoid any instream work, thus making it possible for road construction to continue outside of the timing window.

The road location proposed that would tie the Sunny Cove road system to the greater POW road system with a road through Rock Creek pass to Polk Inlet, has been analyzed in previous planning efforts and found to require road construction over substantial portions of oversteepened slopes. Other areas significant in length would be on side slopes ranging from 55 to 65 percent. The road proposed would not directly access the West Arm Cholmondeley units as they are further down slope from the road location. These units would still require helicopter harvest, but could be flown to a road rather than to barges on the water. Accessing the Sunny Cove units would require a substantial amount of road on difficult ground, making the economics of roading this area prohibitive.

10. Wildlife Concerns

A number of people were very concerned about the impact that road construction and timber harvest could have on wildlife resources.

a. Wolves

"This same area is an important portion of the home range of at least one wolf pack. This pack frequents the area of Saltery Cove and particularly the Saltery Cove Creek, Swan Lake drainage, they have used this area for over twenty years that I have been hunting, fishing and trapping the area. Any negative impacts to the local deer population will have profound negative impacts on wolves in the area." MHH-154

"According to the owners of the Clover Bay lodge there is a wolf pack that comes through the area on a six-day cycle. .....At the most restricted part of the corridor it will only be a fraction of that needed for interior species, (264 ft. in width as opposed to 600 ft. to an edge), and may not be functional for the wolf pack. There is also a severe reduction in Goshawk and Marbled Murrelet habitat, particularly the high volume POG on the south side of Monie Lake, from the biologist's recommendations to what the Forest Service sale plan calls for." FCC-141

"...the Alexander Archipelago wolf is thought by many to be threatened or endangered as a result of heavy industrial logging on Prince of Wales Island. Habitat fragmentation is extensive on the island. None of the action alternatives in the DEIS provide enough protection for the wolf. It seems remarkable to me that additional new logging is being considered in light of the threat to the wolves, especially in an area that should have been included in the national roadless policy." DM-107

b. Deer

"We continue to believe that the eastern side of Sunny Creek should be included in the small reserve for this VCU. Short of that, the above-mentioned units, which are clearcuts and partially on over-steepened, should be deleted or, at a minimum, their boundaries significantly altered to retain more high-value deer winter range. The silvicultural prescriptions for these units also should be changed to single-tree selection logging with basal area retention at 65% or higher to mitigate the loss of deer habitat. We share the concerns of ADEC about the potential for landslides and windthrow in unit 675-033, and also have similar concerns for unit 675-037. We recommend helicopter yarding for any units in this watershed." AK-DGC-103

"The entire Saltery Cove drainage area including Saltery Cove Creek, Swan Lake and the five other smaller basins flowing into Saltery Cove, provide extensive and extremely important deer winter range. Units 614-001b, 614-002 and 614-034a are critical deer winter habitat. Large numbers of deer move to these areas from higher elevation areas to the south and east. These areas provide some of the best late season deer hunting habitat in TLUMP reports. Any timber harvest in areas will have negative impacts to the local deer population." MHH-154

"The deer habitat capability and winter range models are outdated and cannot be used to guesstimate the project's impacts on deer. The DEIS analyzes old growth management in terms of POG and the new volume strata of high, medium and low, while reviewing deer viability in volume class 5 and 6. See DEIS at p. 3-55, 56. Without using comparable units of value in the DEIS, the deer assessment and the old growth habitat strategy are meaningless." SEACC-158

c. Marten

"The entire Saltery Cove unit 6140 is some of the best martin habitat remaining in Skowl Arm." MHH-154

"... we want to emphasize .....that the special standards relied on by the project to maintain American marten viability in areas where more than 33% of old growth has been or is proposed to be converted to second growth, do not have a scientific basis and [cannot] be relied upon. In particular, neither the canopy closure requirements nor the down wood component called for correspond to reported values for marten habitat." NRDC-162

d. Swans

"The logging around Swan Lake will adversely effect the swans. The swans spend most of the year – Oct. to as late as July – in the lake area. I'm sure if there was better habitat for them, the swans would not be in this lake." DMO-94

"Swan Lake is annually used by Trumpeter swans on both north and south migration routes. The lake is used by many swans as a rest area in the spring, and I have seen up to fifteen swans on the lake in early spring." MHH-154

"We have recorded Trumpeter Swans many times in Sunny cove and in the estuary of sunny Creek. We also believe they use the lakes behind our property, as we see them coming and going in the area." RKA-130

"The Forest Service .....has not identified the number and habitat patterns of the swans.....in our cove." RKB-163

e. Other

".....present in the area and uncommon overall on Prince of Wales Island are spruce grouse.....and I have observed and harvested them in proposed units 614-001a, 614-001b and 614-002." MHH-154

"Sandhill cranes ..... occur and may nest in the Swan Lake area, I have observed adult cranes displaying at the upper end of the lake in the spring, and observed adults with juveniles at the head of McKenzie Inlet in the summer and early fall." MHH-154

"Canada geese do nest on Swan Lake and I have observed several nests on small islands at the upper end of the lake and many broods on and around the lake." MHH-154

"Common mergansers and other cavity nesters nest in the dead standing timber around Swan Lake and the other small lakes and beaver ponds in and near the proposed units." MHH-154

"The Forest Service .....has not identified the number and habitat patterns of the.....blue herons in our cove." RKB-163

"Humpback whales have been documented for several years in Sunny cove area, we also have Stellar Sea lions, in fact between Sunny Pt. And where you are proposing the LTF is a haul out the sea lions use, you state none of your alternatives will affect these endangered species, we don't agree on this issue, the LTF will disturb the haul out and cause further bottom damage from the bark [therefore] possible damaging the food chain which feeds the whales and other wildlife that use Chomondeley." RKA-130

"...because of its value as an estuary and as black bear habitat, the Sunny Creek drainage is designated as Crucial Habitat in the Fish and Wildlife Element of the Alaska Department of Natural Resources (ADNR) Prince of Wales Island Area Plan. Moreover, the unit card for 675-033 indicates evidence of goshawk use and the presence of 'fairly good goshawk habitat' in this stand. IDT meeting notes indicate

goshawk activity in units 675-029 and 675-030. These observations demonstrate the importance to wildlife of this relatively isolated stand of high-volume old growth timber." AK-DGC-103

"We strongly disagree with assertions on page 3-58 that hairy woodpeckers and brown creepers would benefit or suffer no ill effects from this project because the number of forest patches would increase following logging. Although the number of patches may increase, the number of acres of habitat, the number of highest volume old-growth acres, and the number of snags available for nesting and foraging will all decrease. Acres of habitat, high-volume, uneven-aged old growth, and availability of decayed wood for nesting and foraging are the important factors in survival of hairy woodpeckers and brown creepers, not the number of forest patches of a certain size. As a result, hairy woodpeckers and brown creepers will suffer detrimental effects from the sale. The DEIS analysis is seriously flawed and should be redone." AK-DGC-103

"ADF&G was informed in a telephone conversation with a Saltery Cove resident that a young goshawk had become trapped in a neighbor's shed, and that other goshawks have been observed in the area. She also indicated that swans have been observed on Swan or Saltery lake, and expressed concern that a timing restriction on harvest activity would be necessary." AK-DGC-103

"The Cholmondeley Timber Sales cannot proceed until results of small mammal trapping are compiled and the presence and population size of endemic mammals, including the POW flying squirrel, are determined. The POW Flying squirrel may be endemic and genetically distinguished from other flying squirrel populations. .....The Forest Plan directs the USFS to evaluate the risk to these species before any activities that might cause an impact to their populations on Prince of Wales Island. The USFS cannot conduct this risk assessment until the Forestry Sciences lab has furnished such information." FCC-141

"We have personally witnessed eagle nest trees being left without any trees for 'wind buffer' (and being abandoned and blown over the subsequent year),..." FDE-7

"I also dive both for pleasure and commercially for sea cucumbers. Clover Bay is one of the areas in the rotation for this fishery. I have dove in areas where there are log dumps, or even log dumps in adjacent bays. It is amazing how barren the bottom is, covered with debris that spreads out from these dumps." CH-6

"The thrill of watching killer whales in the cove, the many bear and deer there, hearing the wolf pack howl at night and the resident eagles and seal rookery (including the orphaned baby seal on the lodge dock) and the humpback whales jumping around Skin Island, always made my time at Clover Bay Lodge a very relaxing and enjoyable experience." DM-23

".....in season we pick berries, goose tongue, beach [asparagus] and Devils Club for a medicinal tea used traditionally by our forefathers." JL-29

"As I understand the proposal, there's not even riparian stream buffers to protect streams and fragile wildlife habitat. This sounds more like rape than logging." GC-56

"26 miles of new roads on slopes in some places greater than 73% grade and over so many streams in the midst of a roadless area will threaten the viability of that forest. Wildlife will be at risk." RMF-77

"From what I know, it seems other values more than outweigh a timber sale in this area. There are clean streams, salmon, pristine drinking water, subsistence use by natives, hunting, fishing, tourism, etc. The combined value of these seems to me to outweigh the value of a timber taking." LCH-78

"Wildlife Habitat – We believe your analysis is not even feasible, was this done by computer design, this 2095. Real life is what the loggers don't kill and trap others using the road will, ask some of the people over there what happened to the deer when the camp was in Dora Bay." RKA-130

"Giant clearcut sale plans are bad for wildlife....." JK-165

Responses to:

a. Wolves

Response: The action alternatives of this sale provide enough habitat protection in 99% of the project area to maintain the deer habitat capability to the level that will support both wolf and human impacts. Since the main prey of wolves is deer and the project protects deer habitat well enough to support a deer population capable of sustaining predation by both wolves and hunters, then the wolves should not be heavily impacted by this activity.

A map of the biologists-recommended Old Growth Reserves (OGR) for Sunny Creek has been included in the Final EIS. All harvest on slopes at or exceeding the 72% slope criteria in the Forest Plan were field-checked by a soil scientist. There is no evidence that forests on this kind of slope are highly utilized by wildlife to the degree that harvesting them will put the viability of any species at risk.

At the narrowest point, the OGR corridor around Monie Lake is only 250 feet wide (the lake buffer). This does not allow for any interior habitat requirements to be met. The amount of goshawk and murrelet habitat along the south shore of Monie Lake is reduced in the EIS recommended OGR from the interagency biologists-recommended OGR.

The Alexander Archipelago wolf has not been listed as threatened or endangered by the USFWS, due in part, to the protection measures included in the Forest Plan. The increased access to an area can lead to increased hunting and trapping pressures experienced by the wildlife. Open road densities of 0.7 to 1.0 mi/mi^2 or less may be needed to maintain wolf populations in areas where analysis has determined that road access may significantly contribute to wolf mortality (Forest Plan, page 4-116). At the completion of this project the open road density will be zero. The road densities for this project for Alternatives 3, 4 and 5 are .06, .2 and .3 respectively. After the harvest is complete, the open road density for the project area will be zero.

A table in the Cholmondeley EIS shows extent and percentage of the deer winter range (Tables 3-30) within the proposed harvest units. See Deer section below.

The deer winter range model is an adequate tool for the comparion of alternatives in a planning context.

b. Deer

Response: The deer habitat capability over the vast majority of the project area, (99%), is predicted to remain at or above that which the Forest Plan recommends to support both wolf predation and human hunters. The table in the document that illustrates extent and percentage of the deer winter range (Tables 3-30) within harvest units. Of the action alternatives, Alternatives 2, 3, 5 and 6 will result in about a 10% decline in the top two rankings of deer winter range, while Alternative 4 results in a 4% decline and Alternative 7 a 2% loss. Alternatives 2, 3, 5 and 6 harvest approximately 256 acres of Rank #1 deer winter range and 286 acres of Rank #2. Alternative 4 harvests 224 of Rank #1 and 135 of Rank #2. Alternative 7 harvest only 162 acres of Rank #1 and 92 acres of Rank #2.The deer populations are predicted to decline by 9% and 5.5% in Wildlife Analysis Areas (WAAs) 1212 and 1213 respectively. The resulting deer densities in these two WAAs will remain at or above that which the Forest Plan recommends to support both wolves and hunters. In WAA 1214, 1% of which is in the project area, the densities are currently below that which is recommended in the Forest Plan and are predicted to decline further by the year 2095 (according to the 100 year planning horizon). The portion of this decline that can be attributed to the Cholmondeley sale is negligible.

At the end of the timber sale, the deer density is predicted to be 17 deer per square mile in WAA 1212 and 21 deer per square mile in WAA 1213. For the first several years, areas that have been clearcut provide increased forage to species such as deer. Does with fawns are always more vulnerable.

c. Marten

Response: In Alternative 5, the preferred alternative, the marten habitat capability is predicted to decline by 9% due to the effects of the Cholmondeley timber sale.

It is the increased access of previously inaccessible areas that has the potential impact. The increased access to an area can lead to increased hunting and trapping pressures experienced by the wildlife. The marten population capability begins to decline at road densities of .2 and may show as much as a 90% decline with road densities reach .6 miles per square mile. The road densities for this project for Alternatives 3, 4 and 5 are .06, .2 and .3 respectively. After the harvest is complete, the open road density for the project area will be zero.

The marten standard and guideline for areas where more than 33% harvest has occurred do not apply to the Cholmondeley project. The Forest Plan (p. 4-119) states the following, "The objective is to manage for high value marten habitats in areas of timber harvest in higher risk biogeographic provinces to retain features of forest stand structure important to marten habitat use. Higher risk provinces include regions where significant amounts of past timber has established a large component of forest stand structure in young conifer stands (e.g. harvest since 1954) with little or no residual forest stand structure within the stands. These provinces are East Chichagof, Mitkof/Kupreanof, Central POW, Etolin Island and vicinity (excluding Zarembo Island) and Revillagegado Island and vicinity. High value marten habitat includes stands below 1500 feet in elevation in high volume productive old growth timber strata as defined in the latest versionof the Interagency Marten Habitat Capability Model. High value habitat may be verified by project level review of the model projections considering on-site specific information and stand characteristics." " In VCU's within higher risk provinces and where less than 33% of the original productive old growth forest has been harvested, vegetation management applied to high value marten habitats that creates openings over 2 acres should use silvicultural methods to meet marten the marten objective. Within the harvest unit, meet the following forest stand structural characteristics after harvest:

- Retain approximately 10-20 percent of the original stand structure.
- An average of at least 4 large trees/acre (20-30" DBH or greater) for future snag recruitment. Where not available substitute the next largest trees.
- An average of at least 3 large decadent (dead or dying) trees/acre (20-30" DBH or greater). Where not available substitute the next largest decadent trees.
- An average of at least 3 pieces/acre of down material (logs 20-30" or greater in diameter at the large end and 10' long), generally distributed throughout the harvest unit.
- Retained trees should have a resonable assurance of windfirmness.
- Consider adding smaller or younger trees for future structure recruitment and to improve windfirmness.

For timber harvest units less than or equal to 2 acres in size, in high value marten habitat allow full canopy removeal but limit the number of openings to an equivelent of 25% of the stand removal every 50 years (e.g. 12-13, 2 acre openings, 25 1-acre openings etc. within a 100 acre stand."

d. Swans

Response: The Forest Service acknowledges the fact that there are swans present on Swan Lake. The chances for causing disturbance to swans are minimal unless logging and road building activity are going to occur in the winter. Trumpeter swans are not known to nest this far south on the Tongass National Forest. The southern most nesting population in Alaska occurs in the Chilkat Valley (Forest Plan, page 3-234). The swans that are seen on Swan Lake into the summer months, (one comment mentioned swans as late as July), are most likely single swans whose mates have died, or the young of previous years. Swans do not reach sexual maturity until they are 4-5 years of age. These birds may not have the drive to visit the summer breeding grounds and so remain on Swan Lake after the others have headed north. If swans did nest here, they would not be leaving by July as that would result in them abandoning nestlings which were incapable of flight. On the breeding grounds, cygnets are unable to fly until around September, which is why they start showing up on Swan Lake in October. Swan Lake has a 200-foot no-cut buffer and several hundred feet of partial-cut buffer. The Forest Plan standards and guidelines state to "Avoid disturbance of trumpeter swans particularly during nesting, brood rearing and wintering periods..." and to "limit development within one-half mile of wetlands used by wintering swans." The standards and guidelines also state "The District Ranger will take feasible measures to minimize disturbance (Forest Plan, page 4-92).

The Forest Service has, in fact, conducted winter aerial swan surveys in the Saltery Cove area in 1989, 1990, and 1991. No surveys have been conducted recently due to lack of funding. We would be glad to receive any information that the residents of the area have on the use of the area by swans over the years and add it to our records.

e. Other

Response:

Waterfowl:Geese nest in areas which are not usually effected by logging activity. They tend to choose areas of marginal timber in which to nest. Any nests found will be protected by current Forest Plan standards and guidelines.

The habitat requirements for common mergansers and other cavity nesters are conserved by applying the Reserve Tree/Cavity nesting habitat standard and guidelines (Forest Plan, page 4-117).

Herons:

Surveys for great blue herons were not conducted because most of their nesting habitat will be protected by either the 1,000-foot beach buffer or by riparian buffers. Any rookeries found outside these buffers will be protected by current standards and guidelines.

Black Bears:

There is a mandatory 1,000-foot buffer on the estuary in Sunny Cove. This buffer will help mitigate the few anticipated affects to the black bear. There will still be beach grass for the bears to eat in the spring, berries and salmon in the summer, and more salmon in the fall. Roads will be closed to motorized vehicle traffic during and after road construction and silvicultural activities have occurred. Only administrative traffic will be allowed. The closure order used will also require that no firearms be allowed in the project area in order to minimize any security concerns for other users in the area. Upon completion of silvicultural activities, all roads will continue to be closed to motorized vehicles and will be put in storage, after which only foot traffic will be allowed. All of these factors will help to mitigate any impacts to the black bears.

Queen Charlotte Goshawk:

Queen Charlotte goshawk studies were done in units that meet the habitat qualification. There was one possible audio detection which had several follow-up surveys done. No goshawk was seen or heard and no nest was discovered. If, during the process of the timber sale, a goshawk nest is found, all the Standards and Guides in the Forest Plan will be applied.

Harvesting the high-volume stands as proposed will not have a dramatic affect to the old growth dependent species. Goshawk use was detected in the Sunny Creek watershed with no other documentations anywhere else in the project area. Craig Ranger District was not informed that a young goshawk had been trapped in someone's shed in Saltery Cove or that any other goshawks had been observed in the area. Any goshawk nests that are discovered will be protected according to Forest Plan standards and guidelines.

Other Birds:

This project is likely to have very little effect on either the spruce grouse or the sandhill crane. The grouse tend to prefer higher elevation, low-volume timber, while the cranes utilize the muskeg areas.

Endemic Mammals:The Final EIS for the Forest Plan, page 3-412, states that, "Alternative 11, [the chosen alternative], has additional features that further increase the likelihood of maintaining well distributed mammal populations compared to Alternative 3, such as mapped small reserves and allocation of four additional medium or small reserves. Substantially fewer old growth acres are scheduled for harvest in Alternative 11 than 3 so overall risks are also reduced and based upon this measure of acres of old growth harvested, Alternative 11 may pose less risk than Alternative 5." The Forest Plan, page 3-413, also states, "... among the 14 species or subspecies included in the endemic group, the Prince of Wales flying squirrel may be assumed to have the greatest viability concern."

The Forest Plan, page 4-120 adds, "Where distinct taxa are located, proposed projects will be designed to ensure their long-term persistence on the island." The Pacific Northwest Research Station is conducting a long-term study of islands less than 50,000 acres in size to identify the existence of endemic mammals throughout the island archipelago of Southeast Alaska.

The Cholmondeley timber sale will not affect the viability of the goshawk, marten, Prince of Wales flying squirrel and other small endemic mammals of the area. The Revised Supplement to the Draft Forest Plan EIS, page 3-251, was cited for the effects on endemic mammals. The table on page 3-251 does show a percentage, (33%), well below the required 80% to avoid significant permanent population gaps. However, the text includes a specific discussion on this panel. The Forest Plan states, "... the other mammal panel dealt with aggregates of terrestrial species about which on the whole very little is known." The uncertainty in assessing the current status and estimating future effects was higher for this group. When faced with higher levels of uncertainty, the panelists tended to score alternatives lower, choosing to err on the conservative and assume a higher risk than might be the case.

Bald Eagles:

The Forest Service leaves a mandatory 1,000-foot buffer on all beach fringe. Since 90% of eagle nests fall within this distance from the shore (Forest Plan, page 3-363), they will be automatically protected and buffered. All identified eagle nest trees outside the beach buffer or that are near a LTF site will be surrounded by a minimum 330-foot radius of protected habitat (Forest Plan, page 3-356). Further restrictions on activity and timing are in place on top of these restrictions, such as no repeated helicopter flights within ¼ mile of an active nest and limited blasting within a ½ mile of an active nest. As a result, very limited adverse effects are anticipated to the eagles, their nests, or nest trees. The Eagle Protection Act of 1948 and the Memorandum of Understanding between the Forest Service and USFWS will protect any eagle nest sites that are discovered outside this buffer.

Marine Environment:

All the LTF sites for this timber sale were approved by NMFS for their flushing ability. The fact that this is a one-time entry sale area, and the relatively small scale and expected short duration of this sale will further limit the effects of the LTFs on sea cucumber habitat. Please see the Transportation section of the Final EIS which contains more information on the LTFs and the dive reports for each site.

The LTF should have very limited effect on the wildlife in Clover Bay. The wildlife may move out of the area when trucks are actually dropping off logs, but will most likely move back in once the trucks and/or boats have left. The same is true for the marine life in the area, which may be disturbed during the actual log raft towing, but it will most likely be for a short duration only, if at all. The marine life in this area should have adapted to some amount of disturbance as a result of the boat and plane traffic from the lodge.

The Draft EIS was sent to the National Marine Fisheries Service for their review. There is documented critical habitat for the Steller sea lion located on Grindall Island. This is approximately six miles from the nearest LTF planned for the project. Sea lions do use the rocks in the Clover Bay area and may be impacted by the activity in the area but there is already significant boat and plane traffic in the area during the summer while the lodge is in operation.

Vegetation:

This project is not anticipated to have any significant negative effects to beach asparagus, berries, goose tongue, or devils club. Since only the LTF site itself will actually impact any beach, there should not be any significant impact to the goose tongue or beach asparagus populations. Some berries actually grow more prolifically in areas after they have been cut due to the increased exposure to sunlight. We are unsure what the actual impacts to devils club may be but believe that it would be low, as devils club seems to grow on either low-lying areas with water very near the surface (not the best spot to grow trees), or on very unstable slopes where logging is not likely to occur.

Fish Streams:

All fish streams within the Chomondeley project area are required to have buffers placed on them. Other streams besides fish streams were protected as well. Important and fragile wildlife habitat located along these streams will be protected as a result of the riparian buffers.

Slopes:

All harvest on slopes at or exceeding the 72% slope criteria in the Forest Plan were field-checked by a soil scientist. There is no evidence that forests on this kind of slope are highly utilized by wildlife to the degree that harvesting them will put the viability of any species at risk.

Drinking Water:

The Standards and Guidelines, BMPs, and other mitigation above and beyond the minimum requirements from the Forest Plan will allow harvesting to take place while maintaining the clean water for both drinking purposes and for the fish, subsistence and sport use for hunting and fishing, and, while the kind of tourist may change, there will still be ample opportunity for tourism in this area.

Roads:

When work began on rewriting the Forest Plan in 1995, the Tongass was on a 100-year rotation, hence the projection date of 2095. The analysis done for this timber sale was completed using the best biological data available; this includes the use of computer models. The Forest Service acknowledges that this is not an infallible method, but it is the best we have at this time. The numbers generated by the various computer models are not meant to show an actual number of animals in a population, but are intended to show trends in population numbers. The loggers will only be on the road system for a relatively short time frame, a few summers at the most, and the CFR road closure order will require that no firearms be allowed in the project area. Within three

years of the final sale in the project area, all roads will be closed. These factors should help to mitigate the effects of the increased road access into the area on various wildlife species.

General Effects of Harvest:

This timber sale is expected to result in the decline of some species due to the affects of harvesting; however, it will not be a significant decline and will not result in the extirpation of any species. All species within the project area are expected to remain at a viable population level. The Forest Service does, in fact, expend funds to rehabilitate areas that have been impacts by past activities. Units, with an average of 35 acres per unit, are small enough to not have a significant negative impact to any species.

Habitat: (Hairy Woodpecker, Brown Creeper, and Other Wildlife Habitat)

The purpose of the OGR system is to protect stands of old growth forests as well as other habitat that is important to a variety of wildlife species. Protecting all the old growth in the Cholmondeley area would be inconsistent with the land use designation for this area. This area will still be of value to the wildlife even after the sale is complete. The Cholmondeley timber sale is not expected to cause the loss of any species. Deer numbers will remain at or above that which the Forest Plan recommends as necessary to support both wolves and humans. Many species habitats, including the eagle, goose, most waterfowl, mink and otter, to name a few, are protected by mandatory buffers such as riparian and beach buffers. The structure left in the units to meet marten standards and guidelines will help to mitigate impacts to other species such as hairy woodpeckers. The sections in the Draft EIS that refer to the hairy woodpecker and brown creeper have been revised.

The Cholmondeley timber sale is anticipated to have limited negative impacts to seals, sea lions, otters, killer whales, bear, deer, eagles, and humpback whales. The impacts to the whales and sea lions are covered in the Biological Evaluation, which is in the Final EIS, Appendix E.

11. Old Growth Reserves

Many people expressed concern for old growth reserve designations and how the reserves may be modified to meet criteria in the forest plan:

Appendix K Criteria:

> *"An effective old growth reserve would include all land between Monie lake and the watershed boundary, approximately 1,000 feet north of the lake, lands within approximately 2,000 feet around the upper end of the lake, and to the shores of the ponds approximately 2,000 feet south of the lake. This would produce a roughly circular reserve, and would include low-elevation POG facing both north and south. High-quality deer winter range, the most likely goshawk and murrelet nesting stands, and the largest remaining block of POG would be included. To the extent that large patches of high-volume old growth are rare in the project area (the only other block as large is in the Sunny Creek watershed), this arrangement also protects a rare feature. We believe such a reserve would meet both the intent and the specifics of the standards contained in TLMP's Appendix K."* USDI-97
>
> *"During project planning, the interagency biologists' team recommended a modified version of the reserve described above, to eliminate all but two proposed harvest units (616-011 and 616-012) from the reserve. The resultant reserve was more linear, rather than circular, but protected most of the largest block of POG, and essentially all of the high-volume POG in the watershed. Excess acres were eliminated from the beach fringe included in the TLMP reserve. The planning team subsequently modified this reserve further to remove the two harvest units from the reserve. This would leave a very narrow strip of forested shoreline along much of the south shore of the lake, and would not preserve*

interior forest conditions. The envisioned 'corridor' would replicate conditions found across much of the heavily harvested central portion of Prince of Wales Island, likely hindering movement of old-growth-dependent species. Harvesting units 011 and 012 would remove much of the best deer winter range in the area, as well as the best potential goshawk and murrelet nesting habitat. We believe an alternative that provides more complete compliance with the old growth reserve criteria of Appendix K needs to be developed and evaluated in the FEIS." USDI-97

"Specific Reserve Concerns. The description of the IDT's modified option D in VCU 6160 (Monie lake area; page 3-51) clearly demonstrates that the proposed reserve consistently disregards the requirements of the TLMP old growth reserve strategy in favor of not foreclosing on any timber volume. In direct contradiction to TLMP criteria, the IDT has taken a 'roughly circular' proposed reserve and made it linear, minimizing the amount of interior forest habitat. The resulting timber harvest and road construction will fragment the largest existing block of old-growth forest in the watershed, which is to be 'compensated by the POG [Productive Old Growth] that is neither in the OGR nor proposed for harvest.' This habitat is typically of low value to wildlife as well as for timber harvest. The DEIS also states that the proposed reserve 'provides quality POG at the preferred Forest Plan level (800 acres)...' but fails to note that the 'preferred biological objective is for each reserve to contain at least 800 acres of contiguous productive old-growth forest but may contain a minimum of 400 acres...' (emphasis added)." AK-DGC-103

"According the Forest Plan Appendix K, medium old growth reserves (OGRs) should contain no less than 5,000 acres of productive old growth (POG) and at least 2,500 acres of high volume strata. In the proposed Cholmondeley sale area, the medium OGR is substandard, containing roughly half the high volume stands required by TLMP. (DEIS 3-54) This is a clear violation of the Forest Plan." SEACC-158Appendix K – Forest Plan Minimum Requirements:

"The Chapter... objects to any expansion of small Old Growth Reserves in the project area beyond the minimum acreage and minimum Productive Old Growth (POG) requirements of the Forest Plan....The Chapter requests that the FEIS and ROD confine any changes to the small OGRs to those that are necessary to conform the OGRs to minimum Plan requirements." SAF-134

"Table 3-16 of the DEIS indicates the agency's intention to reduce the POG available for harvest by expanding the small OGRs beyond the minimum requirements of the TLMP. This, together with the proposal to exchange beach fringe volume for non-beach fringe volume, especially in VCU 616, is inappropriate and unnecessary. The [Ketchikan Gateway Borough] requests that the FEIS and ROD confine any changes to the small OGRs to those that are necessary to conform the OGRs to minimum Plan requirements." KGB-136

"Once again, the AFA finds itself disturbed by the proposals regarding Old Growth Reserves in this DEIS. Exceeding minimum TLMP standards is just not economically justifiable, given the wildlife overprotections provided in the plan." AFA-157

Appendix K and Consultation:

"Medium Old-Growth Habitat Reserve. Appendix K of the Tongass Land and Resource Management Plan (TLMP) contains the criteria for 'further evaluating the design of reserves at the project level.' The basic criteria for medium reserves are: '...a contiguous landscape of approximately 10,000 acres of which at least 5,000 acres must be productive old-growth forest. At least 2,500 acres of the productive old growth forest component should be in the high volume class strata...' Page 3-54 of the Cholmondeley DEIS clearly documents that the medium old-growth reserve (OGR) in VCUs of 6170 and 6760 is 750 acres short of productive old growth and, more importantly, 1,100 acres short of high-volume class strata old growth. In other words, the existing reserve contains only 57% of the high-volume strata forest required by TLMP. Despite this deficiency, the FS did not consult with ADF&G and the U.S. Fish and

Wildlife Service (USFWS) on this issue and failed to recommend any modification of the reserve (pages 3-53 and 3-54)" AK-DGC-103

Specific Reserve Concerns:

"The proposed reserve does '...enhance connectivity between the beach fringe and medium OGR...' compared with the TLMP-mapped reserve. As proposed, however, the portion of the reserve around the lake consists of a narrow strip of trees, described as 'an important travel corridor for wildlife species.' That is 264 feet wide at one point. The DEIS acknowledges (page 3-48, citing TLMP, page 3-24) that 'interior-dependent species usually require a minimum of 300 feet from an edge...therefore, to be effective, corridors must be more than 600 feet wide.' The corridor as proposed falls well short of meeting the referenced TLMP recommendation, much less the TPIT recommendations for corridors (page 14, Policy Clarification document), which supercede the TLMP language. The Policy Clarification indicates that, although the literature suggests 'a minimum buffer width greater than 1,320 feet if the corridor is to exhibit interior forest characteristics...a minimum corridor width of 1,000 feet of productive old-growth forest, comparable to the TLMP beach buffers that are also intended to [contribute] to connectivity, should be retained to facilitate movement and dispersal between old-growth forest reserves. When the only available corridor of productive old growth is bounded by abrupt clear-cut/old-growth forest edges, consider increasing corridor width by a potential tree height. Additional forest structure beyond the 1,000 feet should be retained as necessary based upon local site conditions to provide a reasonable assurance of windfirmness for the corridor.' In a previously unharvested area such as the Cholmondeley project area, selecting an option for an old-growth reserve that would create conditions similar to heavily harvested areas is unacceptable." AK-DGC-103

"Also missing from the DEIS is the information that the existing small reserve has a mostly eastern exposure and thus includes little of the highest-value deer habitat in the drainage. The eastern side of Sunny Creek has the highest wildlife values and yet is not included within the existing reserve boundaries. In fact, nearly all of the highest value deer winter range acres in that drainage are within the boundaries of the proposed timber harvest units 675-030, 675-033, and 675-037. The latter two units were also mentioned by ADF&G as areas of concern in the January 29, 1998 IDT meeting. ADF&G suggested at that time that at least the areas below the road be dropped from harvest. Concerns about effects of timber harvest in these units on fish habitat, water supply, unstable soils, and effects of increased windthrow also apparently were raised in public comments by local residents, according to documents distributed at the January 29, 1998 IDT meeting. The DEIS also indicates (page 3-27) that Sunny Cove residents expressed concern that timber harvest in the area could change wind patterns and affect the safety of their anchorage and the stability of stream buffers." AK-DGC-103

"ADF&G continues to oppose road building in this [Sunny Creek] *drainage because of the potential impacts to pink salmon spawning and rearing and because of the potential for the proposed activities to compromise the important fish and wildlife habitat that currently exists in this area, including creating access to the old-growth reserve. Furthermore, VCU 6750 was rated by ADF&G as being in a category of having the highest community fish and/or wildlife resource values."* AK-DGC-103

Consultation and Interagency Biologists Recommendations: *"In VCU 6750 (Sunny Cove), the DEIS also failed to include a map of the interagency biologists' recommendation that the small reserve boundaries be changed to conform to those approved in the Polk Inlet Timber Sale Record of Decision (ROD). The position of the reserve as proposed in the DEIS encompasses primarily non-forested areas, whereas the position where it was mapped in the Polk Inlet ROD contains much higher quality fish and wildlife habitat. ADF&G has consistently recommended this action in both our scoping comments and in the IDT meetings we attended. At the January 29, 1998 IDT meeting, we indicated that if the acreage for this reserve as require by TLMP is less that what was mapped in the Polk Inlet ROD, then ADF&G would like to see it wrap around both sides of the sunny Creek drainage. As proposed, the reserve is larger than*

required in TLMP in part because of the inclusion of low-value, high-elevation acres that connect to existing units and roads in the McKenzie Inlet Area." AK-DGC-103

Resource Report:

"The DEIS discussion of the options and rationale for increased protection of habitat in the Sunny Creek drainage is inadequate. The lengthy discussion of this issue in the project's Wildlife Resource Effects Analysis Report (pages 3-2 and 3-3) should have been included in the DEIS and must be analyzed in the FEIS. That discussion notes that Sunny Creek is the last unfragmented drainage in the Polk Inlet Timber Sale area that contains high value interior forest habitat for deer and other Management Indicator Species (MIS). According to the Polk Inlet ROD, units in this area were deferred 'for the life of the project.' Which was ongoing at the time of the initial reserve modification discussions. In addition, the comparison of this previous retention area with proposed plans as we requested in our scoping comments is not provided." AK-DGC-103

Cumulative Impacts of Old Growth Adjustments:

"Though the Forest Service moves the boundaries of the small OGRs in nearly every post-TLMP sale on Prince of Wales Island, the agency has never done an island-wide assessment of the cumulative impacts of such haphazard decision making on wildlife habitat and old growth characteristics. The lack of information in the DEIS on the cumulative effects is especially problematic on the percentage of high volume POG targeted in the proposed Cholmondeley sale. In quoting the 1997 Forest Plan FEIS about the ratio of old growth logged in the ecological province from 1950 to 1995, the DEIS misrepresents the magnitude of logging and road building impacts on habitat contiguity and wildlife corridors. In addition to the loss of ¼ of the best of the old growth forest in the ecological province and 132 acres of old growth in the proposed project area mentioned in the DEIS (at p. 3-47), since 1995 more than 4,116 acres of high volume POG forest were logged in the Polk Inlet sale, and 1,710 acres of POG were sold in the Chasina sale area. Kootznowoo selected 20,199 acres within the Chasina area and the non-development LUDS surrounding Soda Bay were conveyed to Sealaska. No mention is made of the cumulative impacts from these post-1995 actions. Continuing to focus logging on the highest value stands by taking the larger blocks of old growth forest and up to 42% of the remaining high volume strata in the area (DEIS at p. 3-49), forecloses options for the future. With more than 70% of the region's biggest and best trees already logged, the DEIS must carefully explain this proposal." SEACC-158

Reasons for Boundary Adjustments:

".....reference is made to the need for changes to the boundaries and/or locations of three small old-growth reserves. The changes are needed, the reviewer is told, 'to meet criteria for wildlife objectives in old-growth reserves...' This is a noble sounding cause – but it is untrue! The changes are needed for the purposes of access and harvest, the prosecution of which will affect the criteria for wildlife objectives in old-growth reserves. If there was no harvest, there would be no need for the changes. Once again, an inappropriate bias is evident in the report." LGM-122

"If we are ineffective in persuading the Forest Service otherwise, and this sale is advanced, precedences will be set regarding treatment of old-growth reserves, roadless areas, inconsistent LUDs, water rights, protected species and myriad other issues. Loss of the beach fringe is just one of many casualties which are likely to occur if forest managers do not muster the wherewithal to address the issues in the macro sense, break from the established pro-industry ways of the past, and draw the line now." LGM-122

"For Sunny Cove you state the new boundary would provide greater connectivity to the McKenzie Inlet area which has been roaded and harvested, what does this mean?.....what is meant by future harvests, you and Dale both have stated this is a one shot deal." RKA-130

Response:

Appendix K:

The interagency biologists-recommended old growth reserve locations is addressed in Alternative 7 of the Cholmondeley Final EIS. Appendix K of the Forest Plan describes the criteria to be used as guidelines for further evaluating the design of the reserves. These criteria are met in the OGRs in 616 (Monie Lake) and 675 (Sunny Creek). Sunny Creek does include some important deer winter range and is more circular than linear, and both include known or suspected murrelet or goshawk nesting habitat and portions of the largest remaining contiguous patch of old growth in the watershed. Further discussion is found in Chapter 3 under Wildlife, Old Growth Reserves.

The timber harvest and road construction in the Monie Lake area will result in the increased fragmentation of the largest contiguous patch of old growth remaining in this VCU. The Final EIS states that the IDT modified option D "provides quality POG at the preferred Forest Plan level (800 acres)..." The Forest Plan goes on to say, "The preferred biological objective is for each reserve to contain at least 800 acres of contiguous POG forest but may contain a minimum of 400 acres..." (Forest Plan 1997, Appendix K K-2). Forest Plan Standards and Guidelines allow for road construction through old growth habitat reserves if other alternatives are not feasible. The interagency biologists' preferred old growth reserve options are displayed in Alternative 7. This alternative protects the entire Monie Lake Watershed, which contains the largest remaining contiguous patch of POG.

A table in the old growth biodiversity section of the EIS displays the various options that were considered for the Monie Lake OGR and whether or not the criteria in Appendix K were met. The narrow corridor of the OGR at the west end of Monie Lake is not wide enough to provide any interior habitat. The width of the reserve at its nearest point around Monie Lake is only 250 feet wide (the lake buffer).

Harvesting the high-volume stands as proposed will not have a dramatic affect to the old growth dependent species. Possible goshawk use was detected in the Sunny Creek watershed with no other documentations anywhere else in the project area. There is a report of a goshawk sighting in the Saltery Cove area. Any goshawk nests that are discovered will be protected according to Forest Plan standards and guidelines.

Specific Reserve Concerns:

The small OGR in Value Comparison Unit (VCU) 675 has now been incorporated into the medium OGR in VCUs 617 and 676.

The small OGR in Sunny Creek will encompass most of the Sunny Creek watershed. The OGR in Sunny Cove, now part of the medium reserve, will, in fact, provide the interior habitat necessary to sustain old growth-dependant species. This reserve complies with the Forest Plan in that it protects a major portion of the largest remaining contiguous patch of old growth in the watershed, is circular, contains habitat likely to be used by both murrelets and goshawks for nesting, as well as some of the important deer winter range, and meets the Forest Plan acreage requirements. The units in the Sunny Creek drainage will only be cable yarded in a portion of the unit and the rest will be helicopter logged. Helicopter logging allows a much greater opportunity to leave structure standing in a unit. The medium reserve now contains a total of 23, 552 acres with 6,503 acres (28%) of Productive Old Growth (POG). There are 2,502 acres (11% of the total acres, 38% of the POG acres) of high volume POG in this OGR. 17,048 acres (72%) of this OGR are non-forested or non-commercial forestlands.

Building a road into the Sunny Creek drainage will increase access to the area, including the OGR. Roads will be closed to motorized vehicle traffic during and after road construction and silvicultural activities have occurred. Only administrative traffic will be allowed. The closure order used will also require that no firearms be allowed in the area in order to minimize any security concerns for other users in the area. Upon completion of silvicultural activities, all roads will continue to be closed to motorized vehicles and will be put in storage and only foot traffic will be allowed on any of the roads in the project area.

Consultation:

A map of the interagency biologist recommended OGR will be included in the Final EIS, Along with a discussion of options for the location of the OGR in Sunny Cove.

According to the fisheries report, the Sunny Creek buffer shown on the unit cards varies from between approximately 1300 feet on the southern-most unit to 200 feet on the northern-most unit, and the buffer will actually be wider due to non-commercial timber. The entire buffer on Sunny Creek is now included in the OGR. The stream buffer contains high value deer winter range. The units in Sunny Cove are even-aged clearcut with reserves, type B in unit 675-030, and clearcut with reserves and overstory removal for the helicopter portion in unit 675-033. Type B clearcuts call for a specified number of snags and live replacement trees with a 20 inch dbh to be retained in 50 to 100 feet of the border. Together with marten standards and guidelines this will provide for some structure retention within the unit boundaries. Marten retention will vary from 216 to 460 live trees and 162 to 345 snags being left in the two units.

Reasons for Boundary Adjustments:The Forest Service has made the medium reserve compatible with the Forest Plan without making major changes to the reserve. These changes negate the need for a small reserve in 675.

The current Forest Plan, with all its standards and guidelines and old growth reserve system, is an attempt to balance the multiple uses of the National Forests. It allows for timber harvest, but only in a way that takes into consideration the effects to the other resources. The Forest Service is also spending time and money to improve the habitat that was degraded due to past activities.

The boundaries and /or locations of several of the small OGRs, as well as the medium reserve in the Cholmondeley project, were, in fact, made in an attempt to better meet the criteria in Appendix K of Forest Plan. The small reserve in VCU 616 (Monie Lake) was moved from how it was mapped in the Forest Plan where it was basically just the beach buffer. Road 2180000-1 which accesses the Clover Bay LTF in VCU 617, was moved east to avoid drinking water issues of the Clover Bay Lodge. In doing so it also was moved outside of the proposed OGR. However, the road is now routed slightly through the beach buffer to the east. This is the only option to avoid the drinking water watershed and still access the units to the north. It was not circular in Forest Plan and it is not now, but it does now include some deer winter range as well a some habitat that is more likely to be used by murrelets and goshawks. It also includes a portion of the largest contiguous patch of old growth in the VCU. As we stated previously in this section, the small OGR in Sunny Cove (VCU 675) has been incorporated into the medium reserve. The changes made to the OGR in the Saltery Cove area (VCU 614) were done to provide connectivity into McKenzie Inlet via a pathway besides the beach buffer. It is a high elevation corridor but a corridor nonetheless.

If the Cholmondeley timber sale goes forth as planned, it will be contributing less than one mile to the roadless area. Over 90% of the McKenzie Inlet Roadless Area will still qualify as roadless. The LUDs for this area are for timber production, so the Forest Service does not believe that it is being inconsistent. The water rights of the residents of the area are being protected, as are the protected species. If the conveyance of the land around Saltery Cove goes forth, the beach fringe connectivity will be broken, but there will be connectivity to McKenzie Inlet provided through the small OGR that is around Swan Lake, although it will be through a high elevation pass. Even if the beach fringe connectivity is broken by the State land selection, there will still be access between the state land and the harvest units.

The IDT recommendations to the OGR in Sunny Cove are proposed to provide better connectivity into the McKenzie Inlet Roadless Area. However this area has seen some past activity and consequently it now has both roads and timber units. The extreme southeastern end of McKenzie Inlet contains four timber units, on approximately five miles of road that is connected to the mainline road system of POW, and six units that were helicopter-logged and are not on any road system. There will be no future entries into the Cholmondeley sale area except for potential salvage sales and replanting of some units. Over 90% of the area will still qualify as roadless, and all roads will be closed within three years after the end of the contract.

12. Silviculture and Vegetation

Many comments concerned silviculture and vegetation issues such as harvest methods, species mix data for the project area, and cedar-decline.

> *"The usage of partial cutting and extremely small clearcuts is silviculturally unsound. These types of units will grow up to basically become low production silviculture slums. A forest will return but will not have near the productivity of a conventional clearcut; I have personally witnessed this many times while crusing old mining claims and cannery sites. A clearcut should be a clearcut, leave no reserve trees, patches or snags."* MB-3

> *"The National Forest Management Act directs the Forest Service to insure that land management plans "provide for diversity of plant and animal communities based on the suitability and capability of the specific land use area in order to meet overall multiple-use objectives, and within the multiple-use objectives of a land management plan." See U.S.C. §1604. According to TLMP, only 2% of the total forest area is cedar. See TLMP FEIS at 3-251, Table 3-68. Yet, the results of stand exams conducted on the Cholmondeley Project Area reveal that over 50% of the timber within the timber stands examined is red and yellow cedar. Unlike NEPA documents prepared for other national forest timber sales on Prince of Wales Island, like the Chasina project, this DEIS does not disclose the acres of the various forested plants communities within the project area or the amount of each to be cut. Neither do the unit cards provide an adequate description of current stand conditions, including species mix. The Forest Service should have disclosed where the various forested plant communities exist within the project area and provided the public with a map showing the locations."* SEACC-158

> *"Forest Plan standards and guidelines for timber management LUDs require the Forest Service to manage for future species regeneration, and to "[s]elect a silviculture system which meets resource and vegetation management objectives of the area, including objectives for biological diversity, long-term site productivity, visual objectives, and forest health." See TIM111-2.I.I. Yellow cedar, which is naturally sparsely distributed, is in decline across the Tongass. The Cholmondeley sale area falls within the northern-most extent of red cedar distribution, and research indicates that red cedar is a key component of the southern Tongass forest diversity. Both red and yellow cedar seedlings are vulnerable to browsing. See TLMP FEIS Appendix G, p.26-27. On the Queen Charlotte Islands, forest managers place protective cones over red cedar seedlings so they will survive winter browse. Both yellow and red cedar creates protective microclimates, contributing significantly to winter deer survival. Since the late 1970's, biologists have concurred that regeneration of both yellow and red cedar can be difficult when competing with hemlock and spruce. The DEIS identifies cedar dieback problems on units 614-002, 614-034B, 616-007, 616-008, 616-010, 616-011, 616-012, 616-013, 616-017,616-018, 616-021, 616-002, 616-023, 616-024, 616-123, 617-009, 674-537, 674-538, 674-549, 675-028, 675-033, 676-462, 676-472, 676-489, and 676-592. Cedar decline is present on several other units, yet only a portion of the units indicate cedar planting, seed collection, seed tree retention or other attempts to maintain species diversity. The DEIS does not refer to any literature specifying how proposed management practices will enhance cedar regeneration potential, or slow the region-wide cedar decline. Contrary to the direction in TLMP, the DEIS fails to take a hard look at what effect logging cedar at such a disproportionate rate will have on area-wide species diversity and diverse species regeneration."* SEACC-158

> *".....the issue of tree species composition and the portion of cedar in the harvest units have not been disclosed by the Forest Service in the Cholmondeley Timber Sales DEIS in direct violation of NEPA. We request that this information be included in a supplement to the DEIS and the impacts on economics and wildlife be analyzed with this information included and the SDEIS circulated for an additional 45-day public comment period."* FCC-141

"Alaska cedar is a very small component of the Tongass National Forest. There is a die-off of Alaska cedar underway, known as cedar-decline, about which there is little understanding. In addition, cedar can be difficult to regenerate, and the replanting that is often required is sometimes unsuccessful." SCS-142

"On pages 3-42 and 45 (Silviculture) the composition of the forest in the Project Area is discussed in percentage terms, but the total existing acres of each volume strata is not disclosed here, or anywhere else in the DEIS. This is important information. In addition, the acres of volume classes 4-7 existing in the project area are not revealed anywhere in the DEIS, nor is the acreage of each class that will be logged. This information is of critical importance concerning wildlife." SCS-142

"Some of the highest densities of Pacific Yew identified to date on the Tongass National Forest are just south of Sunny Cove. The distribution of Pacific Yew on the Tongass ends roughly in or near the project area. Individuals at the far range of a species distribution have different genetic components than typical of the species, in response to the stresses of edge survival. Pacific Yew on the Tongass have a higher concentration of taxol, the cancer-fighting drug for which the species is protected. Logging and road building will affect that extent of this species' range, though the DEIS spends less than 10 lines on the impacts to species viability. DEIS at p. 3-61." SEACC-158

"... the Yew is found throughout Cholmondeley sound a lot has been damaged or killed by the Native logging, very few areas remain untouched and Sunny Cove is one of them, No logging would be the best chance of not completely destroying the remainder of these trees but [helicopter] would be the next best thing." RKA-130

Response: An in-depth explanation of cedar harvest and cedar inventory amounts per the Forest Inventory Analysis is included in the Silviculture section of the Cholmondeley FEIS.

The 1997 Forest Plan ROD anticipates that the use of alternatives to clearcutting will occur on 35% of the proposed harvests. Standing structure left behind in other silvicultural systems will help meet objectives for other resources. Wildlife, visuals, watershed, and soils will benefit from the remaining structure. Structure retention is part of the Forest Plan biodiversity matrix.

It can be argued that small harvest openings in the canopy may actually simulate small windthrow patches that occur naturally (small gap system). It is anticipated that small openings would also favor the regeneration of less economic species (hemlock) over spruce and cedar, which require more sunlight. This will be monitored on the Tongass in the future. Timber Stand Improvement activities in the future, i.e. planting, precommercial, and commercial thinning, will help manipulate the composition, usually toward cedar species.

Through harvest we do impact diversity. We are providing an early successional stage that does not exist on the project area. This has benefits for various species and moves the project toward a balance age-class distribution called for in the Forest Plan.

The planning record contains the details of species breakdown per stand examined. The unit cards contain some of this data. Prescriptions will also summarize the volume estimates. However, the most accurate volume data will be collected at the time the cruise is conducted for the contract package prior to selling of the timber sale contract. See the silvicultural section or the Silviculture Resource Report for more details.

The Forest Plan talks about 2% of the forest in cedar. This is a general broad number used on the whole Tongass. It includes the northern Tongass which contains a much lower percentage of cedar than the southern Tongass. The Cholmondeley project area contains a higher percentage than the average sale in the area. However, approximately only 3% of the project was examined and approximately only 3% will be harvested. Therefore it would be hard to speculate about the overall project species breakdown and anticipate significant effects on such a small percentage of harvest.

Money is not available to examine the plant communities to any great detail over the entire project area. Various plant, tree, and wildlife surveys are taken but are concentrated in very small portions of the project. Stand exams are used to obtain general volume figures for comparison across alternatives, potential insect and disease problems, and indications for potential sensitive resource areas.

Normal old growth cedar stands do contain a large component of standing dead. Many of the stands in the project area have this characteristic. Stands in the project area, for the most part, would not fall into the category of "cedar dieback" where the majority of the stand is in the dead component.

We are not harvesting cedar at a disproportionate rate. The preliminary Sale Area Improvement (SAI) plan is a general estimate of needs based on reconnaissance efforts prior to harvest. Regeneration surveys will be accomplished after harvest to build a final SAI plan with more accurate numbers for regeneration needs. Silvicultural prescriptions will also specify cedar seed trees where needed.

Examination of the timber inventory in the mid-90's has raised questions regarding the accuracy of the fine breakdown of the volume class distribution system and found volume classes 4-7 to not be a valid stratification for volume. The new Forest Plan has redefined the strata classes to be used in place of volume classes. Statistical analysis indicates that three classes of productive old growth forest can be distinguished using the existing timber inventory with additional information on soils and slope. Volume strata were used in deer models for the Forest Plan and continue to be used for project level analysis. At this point we have not determined how canopy texture translates into habitat suitability. Volume strata is further discussed in the silviculture section and in the Silviculture and Timber Resource Report in the planning record.

It is not known if the yew trees at this extreme north end of their range have different genetic components or not. Tests have shown that Pacific yew trees from Southeast Alaska contain a low percentage of taxol. The yew tree has been protected on national forest land since the passage of the Yew Protection Act of 1992. Everything feasible will be done to avoid yew trees in the road construction and logging of the Sunny Cove area. It will not be possible to avoid every single tree, and individual trees may be affected. Individual trees are very scattered in the project area, and research has shown that they should be able to propagate in most light conditions and could respond to nearly any silvicultural system planned. See the silviculture section and the Silviculture Resource Report for more details.

13. Soil and Karst Resources

Several people expressed concern for impacts to soils and karst features.

a. Soils and Slope Stability

"The DEIS indicates that on-site analyses were complete by a soil scientist within potential harvest units containing slopes greater than 72 percent; however, no documentation of those analyses is presented other than the statement on page 2-6 that 'All of the isolated steep slopes that remain in harvest units can be harvested and not adversely affect soil, water quality, wetlands, and downstream resources. These areas have special provisions to mitigate the potential effects of harvest, including leave tree requirements and/or log suspension requirements during yarding.' *In addition, although harvesting is proposed on slopes greater than 72 percent in twenty five units, only four of these units are briefly summarized on page 3-66 of the DEIS."* AK-DGC-103

"According to the TPIT clarification on this issue, 'to document the analysis for allowing the harvest the following Checklist should be used:

Steepness

Dissection

Parent Material

Drainage

Potential impacts on downstream beneficial uses

If the analysis is undertaken prior to the signing of the ROD, then the approval (if approved) should be located in the ROD and FEIS. If the information is not available prior to the signing of the NEPA document, then it should be located in the Change Analysis (documentation of changes made between the ROD and on-the-ground activities).' *Although this harvesting has yet to be approved, the analyses have already been completed, and, therefore, the results should have been documented in the DEIS. However, since they were not, the analyses should be summarized in the FEIS."* AK-DGC-103

"SEACC is particularly concerned with the probable impacts from cutting on steep slopes to existing drinking water sources. Units 614-001a, 614-034b, and 676-462 are adjacent to or transected by streams used for drinking water. The DEIS' analysis of the potential downstream effects on this existing use is woefully inadequate. Logging these units is inconsistent with the Forest Plan's directive to "avoid irreversible or serious and adverse effects on soil and water resources." Logging these units is also inconsistent with TLMP Standard and Guideline S&W112.III.A. This standard and guideline directs the agency to secure favorable conditions of water flows, maintain water quality consistent with Alaska's water quality standards, and protect water sources for drinking. Nowhere in the Cholmondeley DEIS are the potential impacts to beneficial downstream users addressed. For only one of these units (614-034b) did the Forest Service provide any attempt at a justification for cutting on steep slopes within the unit. For the other units important for drinking water, no justification was given for proceeding with cutting on very steep slopes." SEACC-158

"The Forest Service failed to adequately investigate cutting suitability for most of the units for where slopes greater than 72% occur. In Landwehr's January 24, 2001 memorandum to Project Coordinator Gary Lawton, he justifies the lack of a 'Checklist' analysis for 14 of the 25 units with proposed steep slope cutting because he relied on interpretation of 'air-photos', conversations with other team members, and an unofficial discussion with staff from the Department of Environmental Conservation. Landwehr used this conversation to avoid on-site analysis for steep slopes of 'less than 1 or 2 acres.' The Forest Plan, however, does not exempt the Forest Service from on-site analysis, no matter what the size of the slide prone area. For every unit, the Forest Service must use the 'Checklist' to provide a full analysis and justify each 'case by case' decision. Furthermore, Table 3-23 shows that many of the units not given full analysis by the Forest Service included very steep slopes encompassing more than 2 acres, Landwehr's arbitrary cutoff for 'Checklist' analysis." SEACC-158

"Of the 25 units that have areas with slopes of over 72% (Table 3-23), four account for 42 acres of such slopes, or 53% of the total acreage. The steep slope situations of each of the four units are discussed in summary form on page 3-66. The discussions have little meaning, however." SCS-142

"For Unit 614-001 (listed correctly, we assume, as 614-001a in Table 3-23), for example, it fails to mention that the unit card lists the landslide probability as moderate to high, with slopes to 80 percent, and that the unit is in the watershed of the community of Saltery Cove." SCS-142

".....We also feel the other three units were not discussed adequately either, and of course nothing at all was said about the other 21 units in the steep slopes Table. In short, ...we feel that a rationale was not presented or supported." SCS-142

"... I have many concerns regarding the soil quality and its ability to maintain slopes without damaging the water quality of [Sunny Creek]. Page B-73 describes unit 675-028 as having thin soils which are 'susceptible to detrimental soil displacement.' In describing stream crossings for road 2170000-1 a Class III stream, which is part of the drinking water watershed, had a landslide occur in the past. If this area is prone to that type of activity I can't help but be concerned that it would only become more frequent and have more soil movement after the road is constructed." TS-133

Response: The TPIT clarification clearly states "the standards and guidelines allows line officer approval for timber harvest on slopes greater than 72% pending an on-site analysis." The TPIT clarification goes on to state that the checklist mentioned in one of the above comments should be used.

The steep slope analysis completed for the Draft EIS included all of those factors. Percent slope and streams (dissection), if present, were documented. Parent material and drainage are components of the soil series (listed in field notes but not brought forward in the summary) and potential impacts to downstream beneficial uses are discussed. TPIT does not require that the analysis be done before the ROD. On-site analysis was completed in 11 units which comprised the bulk of the acreage of slopes over 72% proposed for harvest. This analysis is included in Appendix A of the Floodplains, Soils, and Wetlands Resources Report for the Cholmondeley Project Area. Twenty-eight acres of proposed harvest on slopes over 72% (in 18 harvest units) have not been evaluated following TPIT guidelines, but many of these units have been visited by a soil scientist prior to TPIT clarification. The TPIT clarification does not require the documentation or checklist to be in the ROD or Final EIS. The TPIT clarification requires that the approval (if approved) should be included in the ROD and Final EIS. At this point the documentation is located in the Floodplains, Soils, and Wetlands Resource Report for the Cholmondeley Project Area and is incorporated by reference and summarized in the Final EIS.

Care should be taken when "playing with numbers", especially landslide frequency numbers, but it is correct that, although most landslide inventories in southeast Alaska have found 3 ½ to almost 10 times as many landslides in harvested versus unharvested areas, this equates to approximately twice as many acres affected in harvested areas versus unharvested areas (on a per acre basis). (The information in the Draft EIS was summarized from the Floodplains, Soils, and Wetlands Resources Report for the Cholmondeley Project Area.) The landslide discussion in the Draft EIS is not misleading. The estimated effects displayed are based on the best available data, and are applicable to the proposed alternatives. Landslides in harvested areas generally occur at lower slope angles and do not travel as far as landslides in "natural" areas (Swanston, 1991).

The Soil Productivity and Stability section of the Final EIS provides an overview of the project area and lists areas where there are substantial acreage of steep slopes and evidence of existing landslides. Areas of potentially unstable slopes within proposed harvest units were field reviewed by a soil scientist. As a result of this reconnaissance, units 614-014, 615-015, 616-020, 675-026, 675-027, 675-038, and 675-039 were deleted from the unit pool due to slope stability concerns. Units 614-034b, 616-010, 616-021, 616-022, 616-123, 616-275, 675-032, 675-033, 675-037, and 676-462 were modified by the project soil scientist due to concerns about slope stability. Units 614-034b and 676-462 are not adjacent to or transected by streams used for drinking water, as stated in one of the comments.

The paragraph above table 3-36, page 3-97 of the Draft EIS clearly states that the figures came from a report by Landwehr, (1998 unpublished). The sentence stating where Landwehr conducted his inventory is not given in the Draft EIS but is stated in the Floodplains, Soils, and Wetlands Resource Report for the Cholmondeley Project Area. Landwehr conducted his inventory on the northern half of Prince of Wales Island. The Northern Prince of Wales landslide data is the closest match we have for the conditions on the Cholmondeley Project Area. Variation does exist between north Prince of Wales and the project area. However, it is the best landslide data set available for estimating effects on the Cholmondeley Project Area.

Proposed harvest units 675-028 and 675-029 in the Drinking Water watershed have been reviewed by a Soil Scientist for landslide potential. Preliminary layout has occurred and in the resulting fine-tuned unit configuration that avoided the steep slopes there are no acres of slopes over 72 percent gradient in either of these proposed

harvest units. The field review did not find any signs of instability other than windthrow. (See Appendix A of the Floodplains, Soils and Wetlands Resource Report for the Cholmondeley Project Area.)

Proposed harvest units 675-037 and 675-033 in the Sunny Creek Drainage were also field reviewed for slope stability. In unit 675-037 steep slopes are very short and located just below cliffs along the upper unit boundary of the unit. The field review did not find indicators of instability with the exception of talus slopes from rock falling off the cliffs. In proposed harvest unit 675-033, 18 acres of slopes over 72 percent gradient were found at about the 600 foot elevation. Indicators of instability were found on approximately two acres of these steep slopes. (The remainder of the steep slopes was associated with cliffs and talus.)

In conclusion, steep slopes were reviewed both before and after the TPIT direction was published. Suitability calls were made on a large group of units and mitigation will be applied to the topography and fine-tuned during the final unit layout phase. A soils specialist will be present for difficult decisions regarding suitability calls. The change analysis will document any additional steep areas and how they were handled during layout.

b. Karst Features

"The Forest Service and Tongass Cave Project (TCP) have both been working to identify and valuate karst formations in proposed timber sales. In other project areas, TCP has found that pre-sale unit surveys do not find many formations, and incorrectly evaluate the vulnerability of karst and cave resources to disturbance. The DEIS must provide much more detail about areas removed from the timber base. Because of karst's permeability, even karst determined to be of low and moderate vulnerability may be important to the water quality of water sources in particular watersheds. Was any karst found in those watersheds that are used by local residents and business for domestic and public water supply? If so, what steps were taken to protect these karst features in order to maintain downstream water quality?" SEACC-158

"We are also very concerned with the effectiveness of mitigation measures for karst resources, as well as other mitigation listed in Appendix E. The DEIS fails to discuss mitigation in sufficient detail for the public or a decision-maker to evaluate the adequacy of the measures. Mere listing of mitigation techniques is insufficient to satisfy NEPA. ..... The Forest Service must take a hard look at the effectiveness of proposed mitigation measures now and not wait until after the dye is cast." SEACC-158

"Since this unit [674-32] is only 9 acres in size; since there is a high risk of windthrow; since there is high vulnerability karst in the immediately adjacent area; and since the unit is predominantly underlain with well-developed karst, we believe that even though the unit would be helicopter logged it should be deleted from the unit pool. Windthrow can lead to significant soil disturbance, which can impact well developed karst. There is no point in taking chances in this situation, and there are bound to be karst features that go unseen until it is too late. Another Unit, 675-32, contains moderate vulnerability karst and also has a high windthrow risk, as well as slopes to 70 percent. We ask that this unit also be dropped from the unit pool." SEACC-158

Response: The TCP and SEACC are not in agreement with the inventory requirements or definition of vulnerability classification utilized by the Forest. This does not mean that the Forest inventory and classification standards are lacking, this just means that the Forest Service uses different standards than those used by TPC and SEACC. The Forest geologist, two soil scientists, foresters, road engineers, biologists, and fishery scientists visited the harvest units. A resource report was written reporting the karst resources encountered in the units. Marble was found to underlie the southern nine settings of proposed harvest unit 675-032 and all of 674-032. Karst development was limited except for at the geologic contact between the phyllite and marble. Here, small streams sank into collapse features. The harvest units were designed to avoid the geologic contact and the sinking streams. The remainder of the harvest units were found to be low to moderate vulnerability karst. Moderate

vulnerability karst was designated so because of the level of soil development. There was no karst found in any of the watersheds used by local residents and businesses for domestic and/or public water supply. Nor is there the possibility of the karst ground waters contributing to those watersheds.

Mitigation discussions clearly outline what is required and prescribed as is demonstrated in the following text from Chapter 3 of the Final EIS:

> "High vulnerability karst areas have been identified and removed from timber harvest consideration (Geology, Minerals and Karst Resources, project file). The drainages that feed these areas are protected. The karst resource assessment determined that the moderate and low vulnerability areas would be suitable for timber harvest given the proposed partial cut prescriptions and partial suspension yarding requirements. No roads are planned within the karst areas".

14. Wetlands

"Action alternatives appear to do a good job avoiding rare and productive wetlands, however, protection should be afforded to ALL wetlands. We recommend that the EIS 1) define rare and productive (i.e., high value wetlands), 2) include a map of the project area that shows all wetlands and those that meet the definition of high value wetlands and 3) identify the locations of proposed road alignments relative to the wetlands. We also recommend that the EIS reconcile requirements to protect to all wetlands as specified in the Forest road exemption (BMP 232.3) and limiting protection to high value wetlands as was done in the EIS. The EIS should also clearly state that forest roads will be closed following harvest and commitments to that effect should be made in the ROD if the Forest road exemption is planned to be used." EPA-167

"Executive Order 11990 prohibits construction in wetlands where practicable alternatives exist and requires that "all practicable measures" be implemented to minimize harm to wetlands. According to the DEIS, roughly 63% of the proposed Cholmondeley timber sale area is on wetlands. Sale activities will impact between 416 and 761 acres of wetlands under Alternatives 2-5. (DEIS at 3-75). According to the DEIS, the action alternatives were developed to address the Purpose and Need for the project. Since the helicopter logging alternatives are deemed uneconomical, Alternative 1 is the only alternative that does not require road construction across wetlands. The Forest Service must choose it over other alternatives to comply with Executive Order 11990. Given the backlog of timber in already approved sales (See section on failure to meet market demand), and the questionable economic viability of any of the action alternatives, the no-action alternative is certainly practicable." SEACC-158

"Estuarine wetlands in the project area are extremely important for their relative rarity and ecological importance. Altered water flow and changes in sedimentation from logging and road building will adversely impact the Monie Lake, Saltery Creek, Swan Lake, Sunny Cove, and Clover Creek wetland systems. The DEIS notes the value of these wetlands and contains broad generalizations and vague references to ways to minimize harm in road building. This does not constitute the level of detail necessary to take a 'hard look' at the mitigation measures and their affects in the proposed project area." SEACC-158

"The DEIS asserts, without any supporting analysis, that the proposed roads 'meet the silvicultural exemption from the 404 permitting process.' *See e.g., C-4. However, to be eligible for an exemption from Section 404 permit requirements the agency must show that the proposed activities satisfy the requirements of the 404 exemptions and avoid the exception to the exemptions (also known as the "recapture" provision). United States v. Akers, 785 F.2d 814, 819 (9th Cir. 1986). The Forest Service fails to meets its burden of proof that it is exempt from Section 404 permit requirements"* SEACC-158

The DEIS reports (at p. 3-109) that 'the BMPs 'assure that flow and circulation patterns and chemical and biological characteristics of water…are not impaired, that the reach of the waters…is not reduced, and that any adverse effect on the aquatic environment will otherwise be minimized.' *Absent from the DEIS, however, is any information or analysis showing that the implementation of these BMPs will actually assure the maintenance or enhancement of flow, circulation, or reach of navigable waters within the project area, including wetlands. In fact, the Forest Service lacks any credible scientific basis for establishing that agency BMPs will in fact accomplish the statutory requirements that would entitle them to this exemption. According to the 1998 Tongass Monitoring Report,* '[c]urrently, the Tongass NF does not have an approved method to evaluate the effectiveness of BMPs related to impacts of management activities to wetland functions and values.' *See Tongass National Forest: Annual Monitoring and Evaluation Report for Fiscal Year 1998 at p. 85 (hereinafter USFS FY98). The report goes on to acknowledge that the agency's evaluation of the effectiveness of the standards and guidelines adopted in the revised Tongass Plan for minimizing impacts to wetlands and their associated functions and values is* 'inconclusive.' *Id. at 87."* SEACC-158

"High value Wetlands – the largest estuary is at the mouth of Sunny Creek, due to the scarcity of Estuarine salt marshes and tall sedge ferns these wetlands should be protected at all costs. No road means No Wetlands Damage." RKA-130

"Road Card pg C-9 for road 2170000-2 which the first ¾ mile is located in the Drinking Water Watershed describes wetlands that will 'be unavoidable while providing access to the harvest units.' *These wetlands, which occur on sideslopes and footslopes* 'serve to store and transfer water to downslope resources.' *(C-9) If the natural storage and seepage systems are destroyed by this road construction (which the EIS says is* 'unavoidable'*) the water will have nowhere to go but down, and it will go down fast. All of these details will undermine any mitigations that are used to try and maintain the integrity of Drinking water Creek."* TS-133

Response: The wetlands section of the Final EIS explains that it is impossible to avoid all wetlands on the project area due to a very high wetland density (63% of the project area). The wetlands section discusses the effects of forest roads on wetlands. The study cited in the Draft EIS describes effects of forest roads limited to within about 50 feet of the road. A more recent study by Master's student Katherine McGee (2000) found similar effects. The wetlands in these studies are very similar to the wetlands in Drinking Water Creek. The wetlands BMPs listed on the road cards are designed maintain flow and circulation of waters in wetlands.

Executive order 11990 allows that: "the Nation may attain the widest range of Beneficial Uses of the environment without degradation and risk to health or safety, each agency, to the extent permitted by law, shall avoid undertaking or providing assistance for new construction located in wetlands unless the head of the agency finds (1) that there is no practicable alternative to such construction, and (2) that the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use. In making this finding, the head of agency may take into account economic, environmental, and other pertinent factors." In choosing an alternative, the agency may take into account economic, environmental, and other pertinent factors when attempting to attain the widest range of beneficial uses of the environment, without degradation and risk to health and safety. The agency does not have to choose Alternative 1 to comply with Executive Order 11990. The decision maker has the latitude to choose any of the alternatives.

Estuarine wetlands, including Sunny Creek Estuary, are considered high value wetlands on the Cholmondeley project area. High value wetlands were avoided in road location. The Tongass Land Management Plan established 1,000 foot buffers on estuaries, and the Forest Plan buffers will be used on the Cholmondeley Project.

Section 404(f)(1)(E) of the Clean Water Act (CWA) provides that the construction or maintenance of forest roads for silvicultural activities is exempt from regulation under the Act, provided the roaded are constructed and maintained in accordance with the Best Management Practices listed at 33 CFR 323.4(a)(6)(i) through (xv). These regulations require the following:

- Roads are to be kept to a minimum width, number and length
- Roads are to be located sufficiently far from streams
- Erosion from roads is prevented
- Road fill is to be culverted or designed to prevent restriction of flood flows
- Road crossings shall not disrupt the migration or movement of those species of aquatic life inhabiting the water body
- Road fill is to be made in a manner that minimized encroachment of heavy equipment

The 404 permit process is used to regulate dredge and or fill of wetlands. The harvest activities planned on the Cholmondeley Project Area will not result in dredge or fill of wetlands or the conversion of any wetlands to non-wetland status. The Cholmondeley Final EIS states that a temporary increase in soil moisture is likely as a result of timber harvest. This is not a conversion of forested wetland to upland or a dredge or fill. Since wetlands are not being converted to upland, a 404 permit is not required and the timber harvest proposed in the Cholmondeley Project Area does not need to be part of an ongoing silvicultural operation to be exempt from 404.

Most of the road through the watershed will be overlay type construction which minimizes any excavation or disturbance of the ground vegetation. Roads are constructed with a coarse graded shot rock, which allows drainage through the rock. Roads constructed of "chunk wood" will also be considered in the design of roads in the drinking water watersheds, to help reduce the amount of rock being overlayed on the ground. Road designs to direct road surface water and sediment away from live streams will help minimize the effects on the watershed. The implementation of standard BMPs and additional mitigation measures will prevent an exceedence of state water quality standards.

15. Water Quality – General

"We have environmental objections to the selection of Alternative 5 as the preferred alternative because it (along with Alternative 4) would likely result in violations of Water Quality Standards (WQSs) and would not comply with Drinking Water Regulations (DWRs). The EIS also does not fully disclose applicable Alaska WQSs and DWRs, and describe an adaptive management strategy that would ensure that Alaska WQSs and DWRs would be met with project implementation." EPA-167

"As a partner with ADEC in the implementation of programs protecting water quality in Alaska, we strongly recommend that the Forest Service identify a preferred alternative in the final EIS that would meet WQSs and DWRs and be protective of public health and that the Forest Service adopt such an alternative in the Record of Decision (ROD). Unless the EIS can demonstrate otherwise, we believe that Section 313 of the Clean Water Act, which describes the responsibilities of federal agencies to comply with water quality standards established under the Act, precludes the Forest Service from adopting Alternatives 4 or 5." EPA-167

"Agency and resident concerns about impacts to water quality from road bulding and timber harvests have not been given due weight in the Forest Service's rush to get the DEIS published." JGSC-149

Response: The Forest Service fully intends to meet state water quality standards. The Cholmondeley Draft EIS did not adequately display a reasonable assurance that state water quality standards would be met. The analysis for the final EIS and the Addendum to the Floodplains, soils and Wetlands Resource Report include a turbidity monitoring plan. The site-specific applications of BMPs, monitoring, and feedback mechanism provides a reasonable assurance that state water quality standards will be met.

There will not be significant adverse effects from erosion and mass wasting on water quality. As described in the Floodplains, Soils and Wetlands Resources Report for the Cholmondeley Project Area, Region 10 of the Forest Service has adopted Soil Quality Standards that place numeric limits on the amount of soil disturbance allowed in harvest units. The standards include mass wasting as a detrimental impact to the soils resource. Past monitoring of the Soil Quality Standards and monitoring of mass wasting provides every indication that Soil Quality Standards can be met and Soil Productivity maintained. (See the Floodplains, Soils and Wetlands Resources Report for the Cholmondeley Project Area.)

The site specific application of BMPs, with a monitoring and feedback mechanism, is the state's approved method for controlling nonpoint source pollution as defined by the State of Alaska's Nonpoint source Pollution Control Strategy (Public Review Draft, May 2000), Forest Resources and Practices Regulations (January, 2000), and the Forest Service's Soil and Water Conservation Handbook (FSH 2509.22, October, 1996) as approved by the state through an MOU (March 2000) and incorporated into the Tongass Land Management Plan.

16. Freshwater Fisheries

"The Forest Service maintains that TLMP standards and guidelines for fish habitat and riparian protection will be sufficient. While a vast improvement over previous standards, shortcomings remain. In comparison with initiatives such as PacFish, the Forest Plan falls short in protecting headwater streams and Class-4 streams, both of which are vital in maintaining water quality and controlling the flux of sediments to lower reaches of streams. We .....believe the Forest Service must go further than the minimum standards and guidelines in the Cholmondeley Project to protect these resources adequately. .....Since this project would log up to the streambanks along Class-IV streams and would disturb riparian vegetation within harvest units, we urge that the No-action alternative be adopted." SCS-142

"In light of recent findings regarding fish passage problems through Tongass culverts, the agency must document how activities will minimize watershed impacts. How can the agency assure insignificant effects on watersheds or fisheries when the agency's past practices have led to fish passage problems on hundreds of salmon streams? To comply with NFMA, the Forest Service must show that its management practices will not seriously adversely affect water conditions or fish habitat by causing "detrimental changes in water temperatures, blockages of water courses, and deposits of sediment." See 16 U.S.C 1604(q)(3)(E)(iii). The Forest Service has not provided substantial evidence in the DEIS to support a conclusion that proposed activities, particularly those in the Drinking Water Creek and Saltery Cove watersheds, will comply with this substantive requirement." SEACC-158

"We suspect that the three salmon spawning streams in the [Clover Bay] cove will have impacts also. This is not really addressed. Neither is the sockeye run that is in the stream down from Mony Lake where a lot of logging Units are proposed." SBO-35

"Concerns listed but not mentioned in the DEIS are the sockeye and steelhead runs to Swan Lake..." DLW-84

"Anadromous fish species and their spawning habitat will be impacted." MG-153

"The Forest Service has already conclusively proven that it isn't capable of constructing culvert crossings that allow safe fish passage. Therefore, the possible 62 stream crossings proposed by the action alternatives must be viewed as reckless and irresponsible management of riparian habitats." JK-165

Response: PACFISH has more stringent standards for protecting fish habitat and water quality than TMLP (Forest Plan). The PACFISH standards do not apply to the Tongass NF. TMLP standards and guidelines will be met.

The Final EIS evaluated the potential impacts (including water quality, fisheries and hydrology resources) associated with all of the proposed alternatives. The unit cards and road cards, which will be included in the Record of Decsion as Appendix 2 and A ppendix 3, list specific mitigation measures proposed to protect water quality. Forest Plan riparian standards and guidelines were developed by an interagency group using the best available science, and constitute the state of the art for streamcourse protection on the Tongass National Forest, while meeting multiple use objectives. Forest Plan riparian standards and guidelines do not require buffers on class 4 streams. Based on downstream uses, streams 6 and 7 in proposed harvest unit 614-001a were given class 3 protection even though they do not meet the bankfull and incision criteria for class 3 streams. This information will be documented in the unit card in Appendix 2 of the Record of Decision.

17. Marine Environment

Many people expressed concern over how timber harvest and road construction would impact marine resources and peoples' use of the marine waterways. We have grouped these into concerns for fisheries and concerns for boating hazards:

a. Fisheries

A number of people were very concerned about the impact that the project could have on the marine environment. In addition to concerns raised above about impacts due to Log Transfer Facilities (LTFs), several people were concerned about bark deposition, general impacts to fisheries, and potential conflicts between users.

> *".....the waters of Sunny Cove are closed to salmon pursing because of its importance as a milling area for salmon stocks, as well as a staging area for out-migrating fry. In addition to chum salmon, Sunny Creek is one of the main pink salmon production streams in the area, with typical runs of 50,000 to 80,000 fish, and also supports coho and sockeye salmon. The FS was a cooperator in building a fishpass on Sunny Creek in 1986 to access additional prime spawning habitat in the watershed above. VCU 6750 is also identified as a 'Primary Salmon Producer' in the 1998 Tongass Fish and Wildlife Resource Assessment, published by ADF&G."* AK-DGC-103

> *"ADF&G continues to oppose road building in this drainage because of the potential impacts to pink salmon spawning and rearing and because of the potential for the proposed activities to compromise the important fish and wildlife habitat that currently exists in this area, including creating access to the old-growth reserve. Furthermore, VCU 6750 was rated by ADF&G as being in a category of having the highest community fish and/or wildlife resource values. In our August 26, 1996 comments on the Revised supplemental Draft Tongass Land Management Plan, the State requested the opportunity to work with the FS to develop '...appropriate management prescriptions that protect community use and fish and wildlife values'."* AK-DGC-103

> *"Commercial salmon, shrimp, and longline fisheries occur in this area. The log dump area CHOM #1 is a main shrimp fishery area and this should be considered. .....This timber sale has the potential to affect many species of salmon, shrimp and longline that are located within the area. We hope that you will consider the impacts to the fishery resources and choose Alternative 1 or an option that provides the most protection to the fisheries from landslides, silt buildup in streams and stream crossings."* SEAFA-125

> *"We have commercial fished this area for fifteen years and have taken great care as not to over [do] it. With logging coming in and more log traffic, we stand to lose a lot. If not all. When they take out our pawn pots with tugs or log rafts it's not on purpose, but we still lose. Not only money, gear and time, but our way of life."* MJF-30

"The Cholmondeley project area contains important anadromous and resident fish streams. These streams are home to sockeye, coho, chum, and pink salmon, as well as cutthroat trout and Dolly Varden char. Other than a general sense of which alternatives will have more impact on fisheries and other watershed functions, the effects analysis presented in the DEIS provides very little site-specific analysis of the effects of various alternatives on fisheries and other watershed functions. In order to give decisionmakers and the public a better understanding of the site-specific effects of various alternatives, the agency should complete and disclose a cumulative watershed effects analysis, as recommended by AFHA." SEACC-158

Response: AFHA direction included completing a watershed analysis and cumulative effects, as mentioned above. A watershed analysis was completed for the area and is in the project file. An analysis of cumulative effects related to fisheries resources was done and was included in the Final EIS. AFHA recommendations were incorporated into the Tongass Forest Plan. Forest Plan standards and guidelines will be met.

The Final EIS evaluated the potential impacts (including water quality, fisheries, and hydrology resources) associated with all of the proposed alternatives. The unit cards and road cards, which will be included in the ROD as Appendix 2 and Appendix 3, list specific mitigation measures proposed to protect water quality.

b. Boating Hazards

Several people were concerned that helicopter yarding to saltwater and towing of log rafts and barges would significantly increase boating hazards in the area. People were especially concerned that yarding logs to saltwater results in unacceptable amounts of logging slash in the water, which can damage boats and foul fishing gear. People were also concerned that tugboats moving log rafts and barges are not maneuverable enough to avoid fishing gear (especially shrimp and crab pots), which can result in a significant loss of gear, fishing time and money.

"...ADF&G Division of Commercial Fisheries has expressed concerns about the potential for log ships, barges, and log storage areas to conflict with commercial purse seiners during the fall chum fishery (late September through mid-October), particularly in the Sunny Cove area. Two purse seine hook-offs are located to the east of Sunny Point, very close to the proposed LTF." AK-DGC-103

"When McKenzie Inlet was being logged (by helicopter) there was so much debris in the water in our area that we had our propeller damaged on our boat. "We also had 3 shrimp pots lost either by tugs towing rafts out of McKenzie or just simply taken ..." JL-29

"There have been two logging operations in the past few years that took place in McKenzie Inlet. Nearly all the residents of Saltery Cove experienced problems with the logging. Floating debris that fowled buoy lines on shrimp and crab pots, damaged props due to the large amount of floating tree limbs, people from the camps pulling our pots without permission. Entire shrimp pots disappeared due to tug and raft operations. These logging operations were fairly small and only lasted a few months. I can only imagine the impact of a sale that is projected to last 3 to 4 years." DLW-31

Response: Large log ships and commercial fishing vessels have both occupied Cholmondeley Sound for many years. The proposed requirement of log barges in lieu of water drops (bag booms) will eliminate many concerns of possible boat damage and floating debris in Sunny Cove and McKenzie Inlet.

The LTF and log rafts near Sunny Cove may temporarily displace several purse seine "hook-offs" during timber sale operations. Length of time depends on the number of seasons under the sale contract. Bark additions will have minimal effects because of the relatively small volume proposed over the LTF and the fact that bark already exist at this site.

Crab and shrimp fisheries in West Arm Cholmondeley may be temporarily displaced due to helicopter/barge operations. The logging operations will be of very short duration and timing operations could be worked out with the local residents.

Depending on the alternative selected, a temporary displacement crab/shrimp pots and a portion of the evening fishing tours in McKenzie inlet may occur.. Stormy-day fishing in the inlet could also be displaced. The combination of barges in lieu of water drops and the short duration of the operation (several months) would minimize the effects. Accompanying the short duration would be long daily hours for helicopter operations. This would also affect the evening tours in McKenzie Inlet.

18. Multiple Uses

> *"I am not a conservationist or a preservationist. I believe there is ample room in the Tongass for both logging and people use. This plan to log is not conducive to multiple use."* WCS-42
>
> *".....the Forest wide goals and objectives applicable to this project area are listed. It appears to me that several are clearly not met by the project. ..... Provide a diversity of opportunities for resource use that contributes to local and regional economies. This preferred alternative is not designed to meet this goal. It places economic value of timber and the timber industry at the dominant, (if not exclusive) 0use of the area."* JM-114
>
> *".....this area should be left for habitat, recreation, fisheries, scenic beauty as the law requires. We feel the Forest Service has ignored these concerns and claims they need the timber no matter the cost to us."* RKA-130

Response: The Forest Plan manages for multiple use over the forest through a system of Land Use Designations (LUDs) and Standards and Guidelines to meet management objectives for activities that could occur in each. Approximately 50 percent of the project area is in LUDs that allow for development (Forest Plan 1997). The project area has had very little harvest in the past and is proposing harvest on only 3 to 4 percent of the project area.

19. Cumulative Effects

Several people felt that the Forest Service had not adequately addressed cumulative effects in the Draft EIS:

> *"From someone who has traveled and worked in Alaska, I see that you've done the required paperwork, left out a lot of cumulative impact issues, impacts from previous and current public and private logging, impacts to old-growth, terrestial wildlife habitat, anadromous fish habitat."* SC-147
>
> *"Despite clear direction, the Cholmondeley Timber Sales draft EIS avoids the required analysis and ignores important contributors to cumulative effects. Cumulative impacts are analyzed in a limited context, important contributions of non-federal lands are not accounted for and the contribution of the Cholmondeley Timber Sales on the larger landscape (POW island and WAA 1214) is ignored. It is critical that an exhaustive cumulative effects analysis be completed for each resource and significant issue identified because of the history of highgrading and fragmentation of quality habitat on POW island."* FCC-141
>
> *"Nowhere in the DEIS does the Forest Service take a hard look at the effects from past, present, and reasonably foreseeable future logging to forest resources in the Cholmondeley area and the users of those*

resources. Given the extent of logging and road building throughout the areas surrounding the project area, the Cholmondeley sale must also be evaluated in its impacts to regional habitat contiguity, subsistence uses, forest-wide species diversity, and other large-scale concerns. Without such an analysis, the DEIS violates NEPA." SEACC-158

"The Cholmondeley Timber Sales DEIS is devoid of an adequate cumulative effects analysis. The DEIS limits its analyses entirely to federal lands and actions." FCC-141

"On page 3-77 the DEIS ...says: 'Based on observations of management on conveyed lands in the area, it is likely the commercial forest land (1320 acres) would be logged when the encumbered lands are conveyed. The watershed resources that would be affected are at the mouth of Saltery Creek and three small anadromous streams in Saltery Cove. Fish habitat conditions are expected to change as a higher percentage of a watershed is logged or roaded.' *Some types of changes are then listed. Although the issue is raised, there is no substantive discussion of how great the cumulative impact could be, and whether it is wise for this project to proceed with activity in a watershed that is likely to receive substantial impacts from logging activities over which there are, at best, few effective controls under State law. A thorough worst-case analysis should be conducted....."* SCS-142

Response: The Draft EIS evaluated the potential impacts (including water quality, fisheries and hydrology resources). Page 3-77 and 3-78 discuss the potential cumulative effects of this project and other possible future projects in the area associated with all of the proposed alternatives including cumulative effects. Page 3-78 of the Draft EIS states, "Within the project area, logging is proposed on 50% of the watersheds though the actual land area that would be logged is 3% of the project area."

A worst case scenario is not justified because forestry operations on state and private lands are conducted under the State of Alaska Forest Resources and Practices Regulations (FRPR) (January, 2000). The FRPR are part the state's approved non-point source pollution control mechanism. Operations on Forest Service lands will be conducted using our BMPs in the Soil and Water Conservation Handbook (FSH 2509.22), which was approved by the state as being consistent with FRPR in a March, 2000 Memorandum of Understanding. The point here is that the FRPR will be implemented on state and Sealaska harvest. Buffers will be left on fish streams and BMPs will be used.

Other sections in the document also covered cumulative effects. The FEIS has included additioanl anlaysis as follows:

The silviculture section discusses past, proposed and future harvest levels in and outside of the project area.

The wildlife section discusses the fact that the Polk Inlet reserve has been replaced by the old growth reserve strategy of the new Forest Plan. Following the guidelines of the new Forest Plan, over 50% of the project area is set aside and only 3 % of the project area is planned for treatment. Wildlife analysis also discloses the effects on the WAAs in and outside of the project area boundaries. Deer models have been run to project deer and wolf habitat effects out to the year 2095.

The cumulative effects on the roadless area are discussed under issue 5. Up to 9% of the McKenzie Roadless area would not qualify for roadless designation. Other project effects to this roadless area are shown in the fact that the original 84,000 acres is currently 80,650 acres in size.

The subsistence section covers the small amount of use taking place on the lands in the project area and that a large increase in the use of the area is not anticipated into the future.

Road cards and the transportation section discuss the fact that all roads will be closed and "put to bed" preventing future effects. Alder is expected to dominate the roadbeds. Roads vehicle travel will also be prohibited through closure order. This entry and its accompanying road system could have the effects of moving recreational

activities (outside of lodge activities) from a more primitive to a more developed recreation usage in the future. See the recreation section of the Final EIS for more discussion.

With no substantial harvest planned for the future we do not anticipate additional cumulative effects in watershed, soils, wetlands, riparian areas, floodplains, facilities, lands, karst, heritage, minerals, air quality, or social or economics (civil rights).

Issues 1 and 2 and the socio-economic report in the planning record discussed the risk to employment that the alternatives have on the lodge businesses. It was also stated that the future of those businesses as, in any business, would depend on their resilience to the changing market and clientele. Both lodges feel they would not be able to sell their "Alaskan Wilderness" experience in the future if major visual impacts occur. Clover Bay has the option to move and Sportsman's Cove lodge does not.

The most effects on scenery will occur during this entry. With no major entry planned soon, units, closed roads, LTFs, and sort yard areas will begin to recover immediately as ground cover vegetation grows back.

Due to relatively small amounts of wood crossing over the Log Transfer Facilities (LTFs), good LTF site selection, and no future logging planned in the foreseeable future, we don't anticipate any cumulative effects on the McKenzie or Clover Bay sites. Past accumulation of logging debris on the Sunny Cove site will be added to during this entry. The additional effects of this entry would be minor compared to opening a new LTF. Again, no major entry in the foreseeable future is planned.

Issues of regional habitat continuity, forest-wide species diversity, subsistence use, and other large scale concerns are also discussed in the forest plan.

20. Forest Service Processes

Several people felt that the Forest Service had not adequately followed scoping and information sharing processes with the public. A number of local residents felt the subsistence hearing process was not conducted appropriately. One member of the Kasaan Tribal Government felt that the tribe had not been properly consulted:

> *"According to Appendix D (page D-3), and elsewhere in the DEIS,* 'All roads on the Cholmondeley project area will be put in storage following timber harvest.' *However, this seems to conflict with other information in the DEIS that pertains to final road disposition. For example, on page 2-14, it states that, under Alternative 4,* 'Six miles of specified road would be constructed to access the harvest units in Clover Bay. <u>The roads would remain open to all uses except passenger vehicles</u>' *(emphasis added). .....Consequently, it is unclear as to what the final disposition of these roads will actually be. If the six miles of road indicated in Table 2-1 will, in fact, remain open, then what is the purpose for doing so? In addition, if they do remain open, then it is unreasonable to assume they would be effectively maintained, especially given the high costs of mobilizing equipment to such a remote location. Given that this timber sale is essentially a one-time entry (the only entry during the rotation), all of the roads constructed for this project should be effectively closed and put to bed following project completion."* AK-DGC-103

> *"... ... Page 3-54 of the Cholmondeley DEIS clearly documents that the medium old-growth reserve (OGR) in VCUs 6170 and 6760 is 750 acres short of productive old growth and, more importantly, 1,100 acres short of high-volume class strata old growth. In other words, the existing reserve contains only 57% of the high-volume strata forest required by TLMP. Despite this deficiency, the FS did not consult with ADF&G and the U.S. Fish and Wildlife Service (USFWS) on this issue and failed to recommend any modification of the reserve..."* AK-DGC-103

> *"Given existence of [the ACMP MOU], ADF&G is concerned about a statement in the DEIS (page 2-7) that* 'The Craig Ranger District has been successful implementing the following BMP's on Class II

streams and expanding the construction window on projects with timing restrictions: … Installing culverts or bridges during low flow periods or when streams are frozen minimizes impacts to the streams. The district fisheries biologist is consulted on a case-by-case basis to determine appropriate options for each site.' *The MOU and associated consultation with ADF&G is not mentioned. In addition, the MOU applies to all fish-bearing waters, not just anadromous waters, and we are uncomfortable with the promotion of instream work outside of standard timing windows."* AK-DGC-103

"We have concerns over our permitted water supply. In one part of the DEIS you state that there will be no impact. But in another, you state that if a certain alternative is chosen that will save our water supply from impact. So how can it be both ways? We have to meet all the state requirements for public water supply in order to be able to house the guests. We are allowed to take water from the stream directly behind the lodge and are required to do daily analysis and water testing with regular reports to the DEC. Any problem with the water will result in our lodge being shut down by them." SBO-35

"What happened to Collaborative Stewardship? We have expressed our concerns and they fell on deaf ears. You have had a proactive stance from the beginning with Notice of Intent and Collaborative Stewardship was just a ruse." MO-75

"Under what guide lines do you consider a meeting public? We have watched the news publications closely for any information on the Cholmondeley Sale and do not remember seeing any notices of public meetings for the following meetings listed in DEIS. September 1997, March 1999, September 1999, October 1999 and March 2000." DLW-84

"……our input will not and cannot be ignored. Up until now the Tribe has not been afforded any kind of consultation that we feel has been at all adequate to meet our or [our] tribal members needs." RJP-OVK-82

"We ……contacted David Arrasmith (then USFS Planning Staff Manager) and arranged a meeting with him……At that meeting we expressed many of our concerns with the proposed sale. Mr. Arrasmith sent us a copy of the minutes of that meeting with a cover letter stating that the USFS would fully address ……all the concerns we had raised at the meeting. ……This has not happened." DLW-84

Response: We have revised our access plan to close all roads after silvicultural surveys are completed. USF&WS and ADF&G were involved in the OGR reserve location process. The interagency biologist-recommended locations for the small OGRs in Monie, Saltery and Sunny will be presented in the ROD. The FEIS has clarified the fact that the modified OGR that was included in the Draft EIS was not agreed to by the interagency biologists. Alternative 7 was developed to accurately display the concerns the interagency biologists option presented. Fisheries timing protection is decided on a case-by-case basis during the implementation phase of the process. Consultation with ADF&G is a normal part of the process.

We have been meeting for several years in a good faith effort to identify issues of concern, prioritizing them and making an extensive effort to develop as many mitigations measures as possible to address and minimize the impacts. We have had more meetings and conversations than the average NEPA project. This is a very complex document and we have portrayed the effects as we see them. We have incorporated or addressed new information as it comes to our attention. We have always tried to be forthright and have said throughout the Cholmondeley process that we had to develop a range of alternatives against which to compare effects. The Draft EIS was an effort to put a recommendation on the table to pull out more issues. The Final EIS has added an alternative to fully address some of these issues.

The location of one meeting was listed incorrectly in the document. A meeting listed in Saltery Cove actually occurred in Ketchikan. Several public meeting were held in Saltery Cove and Ketchikan (several locations). These were at the request of the residents and lodge owners. They were not advertised except that we were assured that all interested project (issue) area residents would be personally notified, and we arranged meetings to

accommodate people's schedules as best as possible. All issue area meetings were well-attended and well-represented by the stakeholders, and other parties were also present. The planning record contains attendance records for all meetings. The general public would have been less likely to travel to remote locations. Two different times were arranged for the Kasaan subsistence meeting to help accommodate the Saltery Cove people. Non-project area residents as well as project area residents and lodge owners attended a Ketchikan meeting (3/2000).

Native tribes and corporations were informed and consulted by various means during the NEPA process. Native tribes and corporations were sent scoping letters, an informational meeting on subsistence was held in Kasaan in October of 1999. A subsistence meeting was planned, announced, and held in Kasaan during the comment period. The draft cultural report on the Cholmondeley Timber Sale was sent to all POW tribes and others in November of 2000. POW tribes were informed of the project at their January 2001 meeting. Ketchikan Indian Corporation was briefed on the project in December 2000. The Draft EIS was mailed to all the Federally recognized tribes in the area. The Common Grounds meeting of many tribes also introduced the project in Craig. The comment period was open for the purpose of gathering more subsistence data. See chapter one for added wording to the text about public comments.

All public concerns have been reviewed and addressed. The Final EIS has been edited and this appendix covers the concerns.

21. NEPA and Other Laws

"All of the action alternatives disclosed in the DEIS, and in particular the preferred alternative, violate the direction in the revised Tongass Land Management Plan (TLMP), the National Forest Management Act, the Tongass Timber Reform Act, the Clean Water Act, ANILCA, Alaska's water quality standards, and the Alaska Coastal Management Program. For these reasons, we believe the preparation of a supplemental NEPA analysis is imperative." SEACC-158

"NEPA requires that the Forest Service consider a reasonable range of alternatives for this proposed timber sale. See 40 C.F.R. § 1502.14(a). Four action alternatives were proposed to meet the stated purpose and need for this project. Alternatives 2 and 3, the two alternatives that rely extensively on helicopter yarding, are unreasonable because they are not economically viable and therefore do not meet the purpose and need for the project. Given the agency's clear intent to highgrade the most valuable timber stands from this project area in the first entry, the agency's reliance on these "straw" alternatives violates NEPA because it constrains the decision-maker's into selecting either Alternative 4 or 5." SEACC-158

"The Forest Service violated NEPA by not developing a reasonable alternative that responded to unresolved conflicts, concerning alternative uses of the resources in this valuable area. 40 C.F.R. § 1501.2(c)." SEACC-158

"The purpose of the National Environmental Policy Act is to provide an accurate disclosure of impacts to the natural and human environment for the public and decision makers. .....As shown above, the Cholmondeley DEIS systematically fails to meet this mandate, either through complete omission of scientific reference or through selective and outdated reference." FCC-141

"The failure to identify finer attributes of POG (i.e. volume classes 6 & &) in the Cholmondeley DEIS is a violation of NFMA." FCC-141

".....I am convinced that the Forest Service has not met the requirements of NEPA, the Clean Water Act, related Alaska State law, and the Forest Plan itself." RKB-163

Response: Water quality standards and the use of federal- and state-approved BMPs are discussed under Issues 4, 5, 6, and 15 of this appendix. The range of alternatives was developed to address issues. After the Draft EIS was published, Alternatives 6 and 7 were also analyzed to address new concerns from public comment. The ROD explains reasons for the selection of an alternative and the modifications to it that better address the concerns and minimize impacts.

Additions to the analysis and additional findings are covered in the Final EIS under "Changes to the Draft EIS."

22. Other Concerns

a. Heritage Resources

"No evidence of tribal consultation, heritage resource surveys, nor consultation with the Alaska State Historic Preservation Office (SHPO) is provided in the Cholmondeley Timber Sales DEIS. There is very little discussion concerning heritage resources in the DEIS." FCC-141

Response: Heritage resource analysis, including literature search and field investigations, is discussed in Chapter 3 of the Final EIS. The specialist's report is contained in project files. A thorough review of existing literature was conducted. Portions of shoreline, lakeshores, and sample harvest units were surveyed. The determination was that no historic properties would be affected by any of the alternatives. Tribal consultation as required by Section 106 of the National Historic Preservation Act is discussed in the specialist's report contained in project files. In this case, since the regulations enacting the amendment to the NHPA requiring intensive tribal involvement throughout the NEPA process were not in place until 1999, tribal consultation is documented from that time forward.

b. Civil Rights

"You claim there will be no other adverse impacts on our civil rights, such as lower income groups, women or minorities. We disagree with this also, some of us live on fixed incomes and the women part sure fits all the females involved." RKA-130

Response: We are not discriminating against any lower income groups, women, or minorities on the basis of religion, race, color, national origin, age, gender, disability, marital status, sexual orientation or political beliefs. The alternatives treat everyone equally.

c. Wilderness

"The Tongass Land Use Management Plan revision failed to consider the McKenzie roadless are for Wilderness designation. .....Until this evaluation is done no Region 10 roadless area sales should be offered. Forest Service regulations require that roadless areas "shall be evaluated and considered for recommendation as potential wilderness areas during the forest planning process..." FCC-141

Response: The summary, under Issue 5, describes the history of the McKenzie Roadless Area. "This roadless area has been evaluated under the 1964 Wilderness Act, ANILCA, Tongass Timber Reform Act, the original Tongass Land Management Plan (1979), the Tongass Forest Plan, and the Supplemental Environmental Impact Statement to the Tongass Forest Plan. Each of these evaluations has left the area open for development." The

project area has designated land use of Timber Production, Modified Landscape, Old-Growth Habitat, and a small portion of Semi-remote Recreation.

The new Forest Plan contains many standards and guides which, in essence, reduce the timber base and make the process more challenging to develop a viable sale.

d. Other Scenery Concerns

"The Trollers Cove cabin should not be compromised by clearcut viewshed and the ongoing racket of helicopters, log trucks, and chainsaws as the area gets initially logged, later thinned and exposed to other subsequent management activities." SW-156

"The Scenery section appears to be incomplete. .....The public deserves an opportunity to comment on scenery issues based on a full and fair discussion of all points of view." SCS-142

"The Chamber believes that sufficient protection for issues such as visual concerns and watershed effects are established by the Forest Plan standards and guides. The Chamber does not support exceeding standards that would unnecessarily reduce the amount of economically available timber from the project area." KCC-136

Response: Unit 616-024 above the cabin will include a series of retention areas on the steeper slope, a series of uncut corridors, and retained trees left to feather the edges of the unit. All this will result in about 50 percent of basal area being retained. This will substantially reduce visibility of harvest on the slopes above the cabin. The result will be scattered openings in the canopy, and possibly some visibility of harvested ground. This harvest will meet the Partial Retention visual objective – two levels higher than the Forest Plan adopted objective of Maximum Modification.

Scenery concerns other than Trollers Cove have been addressed within the major "issue" portion of the document at the front of Chapter 3. The discussion of the impacts to the Sunny Cove residents, Saltery Cove residents and resort clients, and to the Clover Bay area includes extensive discussion of scenery values and impacts from the alternatives. There will be some additional elaboration in a few portions of the scenery discussions. The design of activities in these three areas have included several measures that will significantly reduce the visual impact of this development so that it will meet a Visual Quality Objective one or two levels higher than the Forest Plan adopted objectives.

Higher scenery standards are being proposed in certain units to the address the high level of concern of homeowners and resort owners for the timber harvest and road-building in the viewsheds near their establishments.

e. Pelton Wheel

"I told you several times about my 800 feet of 8 inch penstock and Pelton wheel which provides us with electricity most of the year. This was not even addressed anywhere in the D.E.I.S. When you say you will hay bale the stream, it will slow the water with which we obtain our electricity and reduce it from 120 volts to dangerously low levels that could damage our electrical system or cause a fire. As many times as we mentioned this to you, it should have been addressed." RJL-44

Response: The Pelton Wheel should have been discussed in the Draft EIS. This has been addressed in the Final EIS, in the subsistence section of Issue 1. The road system and timber harvest are not anticipated to effect water yield or timing and thus would not have any impact on your ability to produce power. Hay bales were not included in mitigation listed on the Draft EIS road card for the 2190000 road. The appropriate use of hay bales in

this instance would be outside the stream channel in conjunction with silt fencing to control runoff from the road surface. The Final EIS and Addendum to the Floodplain, Soils and Wetlands Resources Report for the Cholmondeley Project Area provides a discussion of potential changes to streamflow. We do not anticipate any changes to streamflow in the stream the Pelton wheel is on, based on the best available literature.

23. Map and Typing Errors

Volume Strata Colors: The distinction between the medium and high volume strata shading was lost when the printer contractor produced the document. The shading has been changed so that there is more of a difference in shade colors. However, the printer contractor will need to proof the document to ensure that the printed document colors match the originals.

Land Ownership: Some of the non-USFS landownership did not appear on the maps. This error has been corrected in the Final EIS..

LTFs: The extra LTF symbol on the Alternative 2 map has been removed.

Federal, State, City, and Tribal Comments

The Forest Service received four comment letters from the following federal agencies: US Army Corps. of Engineers (two), US Department of Interior Office of Environmental Policy and Compliance, and US Environmental Protection Agency. In addition, the Forest Service also received one comment letter from the State of Alaska Division of Governmental Coordination, one from the Ketchikan Gateway Borough, and one from the Organized Village of Kasaan. Following is a table listing the agencies or organizations and the page(s) of this appendix where their comment letters may be found.

Agency or Organization	Author	Page
USDI Office of Environmental Policy and Compliance	P.Bergmann	B81-B85
US Environmental Protection Agency	J. Leckrone-Lee	B86-B89
US Army Corps. of Engineers	J. Leeds	B90
US Army Corps. of Engineers	V. Glooschenko	B91-B93
State of Alaska Division of Governmental Coordination	J. Garland	B94-B105
Ketchikan Gateway Borough	G. Zimmerle	B106-B107
Organized Village of Kasaan	R. Peterson	B108

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File Desig. D.4.b.

United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
1689 C. Street, Room 119
ANCHORAGE, ALASKA 99501-5126

February 12, 2001

RECEIVED
FEB 15 2001
CRAIG RANGER DISTRICT

ER 00/0907

Mr. Dale Kanen, District Ranger
USDA Forest Service
P.O. Box 500
Craig, AK 99921

Dear Mr. Kanen:

The Department of the Interior (DOI) has reviewed the November 3, 2000, draft environmental impact statement (DEIS) for the Cholmondeley Timber Sales on east Prince of Wales Island in the Craig Ranger District, Tongass National Forest. The proposed project would harvest approximately 23 to 35 million board feet of timber, and construct up to 22.3 miles of road in an otherwise roadless, unharvested area.

Biologists with the DOI Fish and Wildlife Service (FWS) have attended several planning meetings for this project, beginning in January 1998. In addition, FWS representatives have participated with Forest Service and Alaska Department of Fish and Game biologists in reviews of small old growth reserves in the project area for compliance with the Tongass Land Management Plan (TLMP) and subsequent guidance and have reviewed potential log transfer facilities in the field for compliance with relevant interagency siting guidelines.

We request that the following comments be addressed in the final environmental impact statement (FEIS).

OLD GROWTH RESERVE STRATEGY

We are concerned that the DEIS does not adequately evaluate alternatives that meet the standards and guidelines of the TLMP concerning old growth habitat and protection of biodiversity. Shortcomings of the proposed modifications of small old growth reserves, and resource agency recommendations are detailed in an interagency biologists report that will be submitted, as requested by the interdisciplinary planning team, after release of the DEIS for use in preparation of the FEIS. The interagency biologists report will document the "consensus biological recommendation on small reserve locations" described by the Tongass Plan Implementation Team policy clarification distributed by Forest Supervisor Powell in a memorandum dated March 30, 1998, and re-released on August 7, 1998. It should be noted that the interagency biologist team proposed submitting this report in

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November 1998. At the request of the planning team, the report was held until completion of the DEIS, which was published two years later in November 2000.

We believe two of the proposed reserves (Sunny Creek and Monie Lake) fail to meet important standards and guidelines contained in the TLMP, and therefore need to be modified. Appendix K of the TLMP lists five site-specific factors to consider in placing reserves to meet multiple biodiversity or wildlife habitat objectives. These factors are: (1) important deer winter range, (2) known or suspected goshawk nesting habitat, (3) known or suspected murrelet nesting habitat, (4) the largest remaining blocks of contiguous old growth within a watershed, and (5) rare features. Another rule applicable to all reserves requires that reserves be more circular, rather than linear in shape, to maximize the amount of interior forest habitat. Neither the existing TLMP reserves, nor the modifications proposed in the DEIS, for the Sunny Cove area (Value Comparison Unit 6750) or the Monie Lake area (VCU 6160) meet these criteria.

Existing forest stands do offer suitable habitat to meet essentially all of these criteria. Lands outside these suitable stands are naturally patchy and of relatively low volume. However, if the existing, high-volume stands are harvested as proposed, we believe it is very likely that old-growth-dependent species will be dramatically impacted.

Sunny Creek. The 1995 Record of Decision for the Polk Inlet Timber Sale recognized the importance of the Sunny Creek area as wildlife habitat, and reserved the entire watershed as a Habitat Conservation Area. This reserve was modified by the 1997 TLMP, excluding essentially all of the south-facing slope, to the north of Sunny Creek. Surrounding lands and "corridors" of high-elevation, low-volume timber in isolated patches or narrow strips are included in both the TLMP and DEIS modifications. We believe the inclusion of low-productivity lands unnecessarily increases the overall size of the reserve to nearly three times that required, while adding little biological value. These alternatives do not include the highest-value deer winter range, which is characterized by low elevation, high-volume stands with a southern exposure; nor do they include documented goshawk habitat.

Harvest unit design cards for the Cholmondeley Timber Sale (DEIS, Appendix B) indicate that goshawk use was detected in unit 675-033. Interdisciplinary team meeting notes from August 26-27, 1997, indicate that goshawk use was also detected in units 675-029 and 675-030. All three of these units are on the high-volume, south facing slope to the north of Sunny Creek (unit 029 is in an adjacent drainage to the east, but on the same south-facing slope). We are not aware of other documentation of goshawks in the Cholmondeley project area, which highlights the importance of this isolated patch of old growth habitat. Very little high-volume old growth is available for several miles outside this watershed, which effectively isolates this patch as an island. In the naturally fragmented landscape of the Cholmondeley project area, we believe large blocks of high-volume old growth are rare features.

We request that at least one action alternative be developed to protect the productive old growth (POG) habitat on the south-facing slope of the Sunny Creek watershed in a small old growth reserve, especially at low elevation. We believe this would dramatically reduce impacts to old-growth-

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dependent wildlife. To maximize conservation benefits, POG on both the north- and south-facing slopes should be included.

Monie Lake. In the Monie Lake area, the largest contiguous block of POG also exists as a relatively isolated island. The TLMP reserve misses this patch almost entirely, and protects primarily beach fringe forest which, while important to wildlife, does not provide interior forest conditions and is otherwise protected by beach fringe standards of TLMP. In this area, high-volume old growth is restricted to the south of Monie Lake and Monie Creek. South-facing slopes to the north of the lake and creek are dominated by medium- and low-volume strata.

An effective old growth reserve would include all land between Monie Lake and the watershed boundary, approximately 1,000 feet north of the lake, lands within approximately 2,000 feet around the upper end of the lake, and to the shores of the ponds approximately 2,000 feet south of the lake. This would produce a roughly circular reserve, and would include low-elevation POG facing both north and south. High-quality deer winter range, the most likely goshawk and murrelet nesting stands, and the largest remaining block of POG would be included. To the extent that large patches of high-volume old growth are rare in the project area (the only other block as large is in the Sunny Creek watershed), this arrangement also protects a rare feature. We believe such a reserve would meet both the intent and the specifics of the standards contained in TLMP's Appendix K.

During project planning, the interagency biologists' team recommended a modified version of the reserve described above, to eliminate all but two proposed harvest units (616-011 and 616-012) from the reserve. The resultant reserve was more linear, rather than circular, but protected most of the largest block of POG, and essentially all of the high-volume POG in the watershed. Excess acres were eliminated from the beach fringe included in the TLMP reserve. The planning team subsequently modified this reserve further to remove the two harvest units from the reserve. This would leave a very narrow strip of forested shoreline along much of the south shore of the lake, and would not preserve interior forest conditions. The envisioned "corridor" would replicate conditions found across much of the heavily harvested central portion of Prince of Wales Island, likely hindering movement of old-growth-dependent species. Harvesting units 011 and 012 would remove much of the best deer winter range in the area, as well as the best potential goshawk and murrelet nesting habitat. We believe an alternative that provides more complete compliance with the old growth reserve criteria of Appendix K needs to be developed and evaluated in the FEIS.

LOG TRANSFER FACILITIES

We believe the FEIS needs to include a conceptual evaluation of log transfer methods that could significantly reduce impacts to marine habitats. At least one local operator has proposed using temporary, piling-supported piers to transfer logs to barges (see Attachment 1). This technique appears to offer a feasible alternative that would reduce impacts to both the shoreline and the subtidal area in the vicinity of the facility, as compared to the low-angle ramps proposed. Using temporary pilings instead of fill avoids direct habitat loss. Transferring logs to barges, rather than to the water, should result in far less subtidal bark and debris accumulation, which has been shown to have long-lasting, detrimental effects to benthic communities. We also understand that timber quality would be improved by avoiding in-water storage.

Appendix F of the DEIS states that pile-supported bridge ramps such as this were not considered because they were "not demonstrated as practicable" (page F-3). However, unless some allowance is made for operators to evaluate such structures, promising new technologies such as this may never be demonstrated. We believe that if road-based logging is ultimately approved for the Cholmondeley project area, successful bidders should, at their option, be allowed to install and evaluate this or similar piling-supported structures as an alternative to low-angle ramps, which could also be specifically approved.

Shoreline and subtidal marine impacts may also be reduced by loading logs directly to barges via helicopter. In some cases this may require an upland sortyard close to the barge drop locations. We believe possible locations for both barges and sortyards need to be considered in the FEIS.

IMPROVED HELICOPTER ALTERNATIVE

Alternative 2 proposes to harvest all potential units in the project area by helicopter, with no road construction. This alternative responds to concerns expressed for the roadless character of the area, security of the residences and lodges, domestic water quality, wind patterns following logging, and visual impacts. We share concerns for many of these issues and view helicopter logging as an effective method for reducing environmental impacts associated with timber harvest. Additional benefits include potential reduction in overall fuel consumption to the extent that helicopters can avoid the need for road construction (4,000 gallons of fuel per mile), road maintenance, ground-based yarding, hauling, and dumping. By reducing the amount of fuel required as well as fuel handling and storage, the risk of spills and resulting environmental injury is also reduced.

The primary drawback of helicopter logging appears to be economic, although it is not clear if the avoided costs of road construction are considered in calculating net economic benefits. According to the DEIS, present net value of the timber included in Alternative 2 is estimated to be deficit by over $9 million. Because costs for logging by helicopter vary by unit (depending largely on length of haul distance), as do financial benefits (depending largely on timber quality), by including the entire unit pool, without regard to economics of individual units, Alternative 2 produces an very high deficit net value. Since most of the units were not designed for helicopter logging, it follows that they are not economical to log by helicopter. Table 3-4 (DEIS) page 3-32 lists units that range in cost from $300 to over $1,000 per thousand board feet to log by helicopter.

We believe an alternate needs to be developed that would realize the substantial environmental benefits of the helicopter logging as an alternative to ground-based logging by selecting units with the highest value wood and the shortest flight distances, perhaps with modification of some units to improve feasibility for helicopter logging. By eliminating the longer flight distances, it seems likely that overall fuel efficiency (gallons per thousand board feet, as reported in Table 3-30, page 3-85) could also be significantly reduced. We believe it is important that the FEIS include and evaluate such an alternative.

WATER QUALITY MONITORING

All action alternatives rely on unharvested buffers and various levels of log suspension to protect water quality in streams. In streams used as domestic water sources, the sale administrator would "visually monitor suspended sediment, bedload, and any other inputs to domestic water supply streams" (page 2-21). It seems likely that distinguishing naturally-occurring sediment from logging/roading-related sediment during storms or other rain events may be difficult unless a quantitative turbidity monitoring program is established in advance. We recommend that turbidity be documented simultaneously in un-roaded/un-harvested drainages and roaded/harvested drainages during typical rain and storm events. Without an objective standard/baseline such as this, uncertainty over how much of the observed turbidity is caused by logging or road construction could result in inaction when human-caused impacts are occurring. We believe that the results of such a monitoring effort could also address questions on the adequacy of prescribed stream buffers for given channel types in a more general sense, perhaps serving as part of a forest-wide monitoring program.

SPECIFIC COMMENTS

Fig. 2-1, page 2-24. High volume and medium volume strata are indistinguishable because the shades of green selected are nearly identical. Please use colors with greater contrast in the FEIS.

Page 3-44. Uneven aged system section, first sentence ("Uneven-aged systems regenerate and maintain a multi-aged stand structure by removing some trees from all size classes . . . "). Uneven aged systems are created by "leaving" a variety of age classes, not necessarily by "removing" all age classes (i.e., the resultant stand must be uneven aged, regardless of what is harvested). For example, single-tree selection could be considered uneven-aged management, even though only one age or size class is harvested, while clear cutting is an even-aged management system, which removes all size classes. Therefore, we recommend replacing the word "removing" with "leaving."

Page 3-53. Second paragraph, first sentence: "The interagency biologists' . . . (Fig. 3-9)." The indicated figure does not illustrate the alternative discussed in the sentence, instead it shows the alternative designed by the interdisciplinary team. The same comment applies to the first sentence of the third paragraph ("Options B and C . . ."). This needs to be corrected in the FEIS.

Page B-75 and B-77. These unit cards need to be modified to include the goshawk information mentioned in the August 26 and 27, 1997, interdisciplinary team meeting notes.

SUMMARY

We appreciate the opportunity for FWS biologists to work with the planning team on the Cholmondeley Timber Sale over the last several years. We are concerned, however, that the old growth reserves proposed by the planning team do not adequately reflect the biological significance of the few, large old-growth patches that exist in the project area. We recognize that these high-volume old-growth patches offer the most economically feasible timber in the project area. However, because of the discontinuous nature of the lower-volume stands in the remainder of the project area, we do not believe that the alternative reserves proposed by the planning team for the Sunny Cove and

Monie Lake watersheds will provide interior forest conditions or sustain old-growth-dependent wildlife species. We also believe that the proposed reserves in these areas do not comply with TLMP standards and guidelines.

Our recommended modifications to the small old growth reserves would remove two potential harvest units in the Monie Lake area, and three in the Sunny Creek area, from a pool of 44 units. While we believe that these units should not be harvested (because they are critical to integrity of functional old growth reserves), we are optimistic that economically feasible sales utilizing helicopter logging, piling-supported barge transfer facilities, or other environmentally preferable methods may be possible in the Cholmondeley project area.

Thank you for your consideration of these comments. If you have any questions, please contact Steve Brockmann of the FWS in Ketchikan at 907-225-9691.

Sincerely,

Pamela Bergmann

Pamela Bergmann
Regional Environmental Officer - Alaska

Attachment

ATTACHMENT 1

Log Transfer Facility Proposal
By
PACIFIC LOG & LUMBER, Ltd

May 19, 2000

In an effort to meet the concerns and needs of the many users of the Tongass National Forest as they relate to the harvest and transfer of logs, we are presenting a draft Log Transfer Facility plan for comments.

This facility is designed specifically for the transport of logs utilizing barges in the 35 x 150' to 55' x 260' size range. (125-300 Mbf capacity) A hydraulic log loader will be positioned on the deep water end of the pier and will swing logs brought to it onto a barge positioned against the pier face. To operate efficiently, immediately adjacent log decking and storage area will be required to hold 1.5 times the capacity of the largest transport barge to be utilized. The typical loading period will be two hours prior to high tide and two hours after depending upon the loaded draft of the barge. Logs from the deck will be carried to the log loader to maintain a steady flow of logs for loading.

The average timber sale volume is 2.0 to 5.0 MmbF. It is impossible to amortize the cost of installing and then removing a log stringer bulkhead back filled with rock. The drive down ramp style transfer facility is easier and less expensive to construct but like the stringer bulkhead, leaves a footprint unacceptable to many after removal.

The proposed facility utilizes a two section bridge similar to the Hamilton Bridges used on large stream crossings. The shore end is supported with a precast foundation placed at or above the 16' tide elevation. The water end is supported by (4) 18" steel piles and box tube cap. Steel beam X-bracing is placed on the (4) support piles for lateral support. Additional support is provided by an 1-3/8" cable secured to the pile cap and extending shore ward at a 30-60 degree angle to a deadman buried 4-6' below the finished yard elevation. The piles will be placed in sockets when solid rock prevents adequate driving to ensure the foot of the pile is properly secured. Two additional piles will be driven 30' each side of the transfer bridge to assist holding the barge perpendicular to the transfer bridge. If necessary, additional lateral support can be gained by attaching 1-3/8" cables to the breasting piles near the foot of the pile and extending them to each end of the cap supporting the bridge. These cables will be tensioned with turnbuckles.

The length of the bridge is 60 feet long. In areas requiring a longer bridge to reach the zero tide mark, a mid span support consisting of (2) additional piles and cap may be required. The bridge will be constructed in halves to limit the weight of each piece. The steel deck of the bridge will be integral with 12-18" side rails on the outside edge. The inner edge of each bridge half (4") will be rolled up 90 degrees forming a watertight pan. When both halves are in position, the inner pan edges set against each other to form a near tight seam. Wood timbers will be placed to

ATTACHMENT 1, CONT.

provide a wear surface inside each containment pan. A bulkhead or end plate will be attached across both ends of the bridge between the side rails. The support pier and cap will be positioned approximately 7" higher than the shore end support to insure any potential leakage from the log loader drains towards the shore end of the bridge where it is directed into an oily water separator.

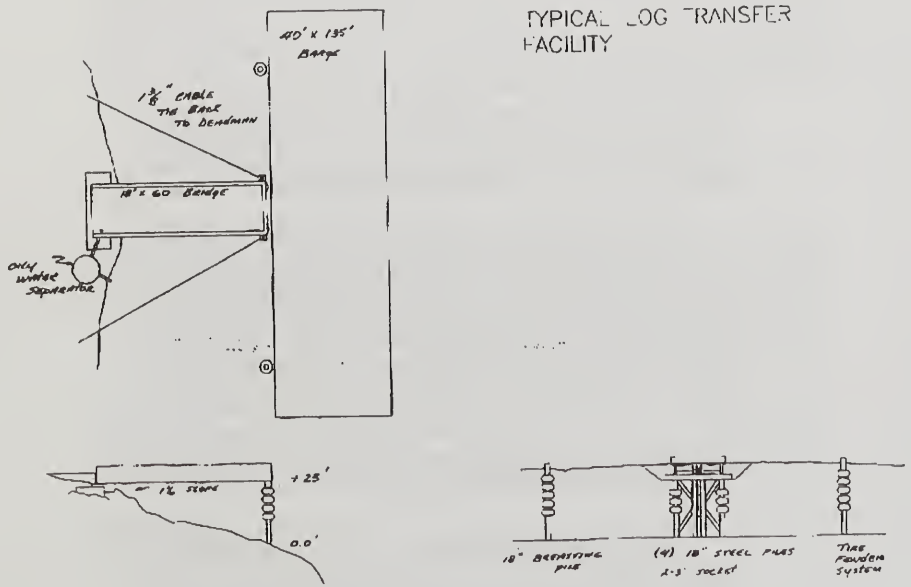
Bark knocked loose from the log when placing the grapples around for lifting will fall and collect in the bridge pan. After each load out, the bark and other debris will be swept clean and disposed of in an approved manner.

When the timber sale is completed, each component will be removed and utilized at another location. Disturbance below mean high tide is limited to (6) sockets drilled to secure the support and berthing piles.

We are currently working with the USFS to identify a suitable site on the east side of Prince of Wales Island to install this system to facilitate the loading and transport of logs to our Lewis Reef sawmill in Ketchikan. We welcome any comments or suggestions from all involved parties. Please direct them to my attention at:

Pacific Log & Lumber	247-6731	Phone
	247-2692	Fax
Or	s.seley@seley.com	

ATTACHMENT 1, CONT.



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Doc. No. 0789
File Desig. D.4.b.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, Washington 98101

Reply To
Attn Of: ECO-088

MAR 5 2001

97-049-AFS

Gary Lawton
Craig Ranger District
P.O. Box 500
Craig, AK 99921

Dear Mr. Lawton:

We have reviewed the draft Environmental Impact Statement (EIS) for the proposed *Cholmondeley Timber Sales* (CEQ #) in accordance with our responsibilities under the National Environmental Policy Act (NEPA) and §309 of the Clean Air Act. The draft EIS examines proposals to harvest between 23.4 and 35.2 MMBF of timber on 941 to 1511 acres in the Sunny Cove, Saltery Cove, and Clover Bay watersheds on Prince of Wales Island, 25 miles west of Ketchikan. The preferred alternative, Alternative 5, proposes to harvest 35.2 MMBF of timber on 1511 acres and extract harvested logs by constructing and using 22.3 miles of road and 3 Log Transfer Facilities (LTFs).

We have rated the EIS, EO-2 (Environmental Objections- Insufficient Information). We base our environmental objections to the project on the selection of Alternative 5 as the preferred alternative in that it (in addition to Alternative 4) would likely violate State of Alaska Water Quality Standards (turbidity and sediment criteria and the Antidegradation Policy) and not comply with Alaska Drinking Water Regulations if implemented. Alternatives 2 and 3 would meet the stated purpose and need while protecting aquatic resources. We strongly encourage the Forest Service to select Alternatives 2 or 3 as the preferred alternative in the final EIS or modify an existing alternative to ensure consistency with Water Quality Standards and compliance with Drinking Water Regulations. Finally, we recommend that the Record of Decision reflect the adoption of such an alternative.

This rating and a summary of our comments will be published in the *Federal Register*. A copy of the rating system used in conducting our review is enclosed for your reference. Thank you for the opportunity to review this draft EIS. If you would like to discuss these issues, please contact Chris Gebhardt at (206) 553-0253.

Sincerely,

Judith Leckrone Lee, Manager
Geographic Implementation Unit

Enclosures

cc: Kevin Hanley, ADEC

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Environmental Protection Agency Detailed Comments on the Cholmondeley Timber Sales Draft Environmental Impact Statement (EIS)

Water Quality

We have environmental objections to the selection of Alternative 5 as the preferred alternative because it (along with Alternative 4) would likely result in violations of Water Quality Standards (WQSs) and would not comply with Drinking Water Regulations (DWRs). The EIS also does not fully disclose applicable Alaska WQSs and DWRs, and describe an adaptive management strategy that would ensure that Alaska WQSs and DWRs would be met with project implementation.

Alternatives Would Not Likely Meet WQSs, and DWRs and Would Pose Public Health Risks

A number of sources indicate that Alternatives 4 and 5 which involve the installation of two stringer bridges and subsequent hauling of rock and logs over roads half a mile upstream of drinking water intakes in the Saltery Cove watershed would result in violations of Alaska WQSs, would not comply with DWRs, and would pose public health risks. The Floodplains, Soil and Wetlands Resources Report from the project's administrative record states that "if Alternatives 4 or 5 are implemented it is likely that fine sediment will enter the domestic water stream in unit 614-001B during culvert installation and rock and log hauling during wet weather." The Alaska WQS for turbidity is 5 NTUs over natural conditions and the Alaska WQS for sediment is no measurable increase in concentration of settleable solids. Discussion with Forest Service staff indicate that Alternatives 4 and 5 would, at times, likely produce turbidity in excess of 5 NTUs (i.e., exceed the WQS for turbidity) if mitigation measures, in addition to those described in the EIS, were implemented. Alaska Department of Environmental Conservation (ADEC) comments on the draft EIS state that Alternatives 4 and 5, as described in the EIS, are inconsistent with Alaska WQSs (18 AAC 70) and DWRs (18 AAC 80), and consequently are inconsistent with Alaska Coastal Management Program and the Tongass Land Management Plan Standard and Guideline S&W112.A. The EIS should explicitly state whether proposed alternatives would meet Alaska WQSs and DWRs and should contain analyses to support these conclusions.

We are also concerned that the increase in turbidity would pose health risks for staff and guests at Sportsman's Cove Lodge and private water users in the area. The EIS states that the Lodge's filtration system can filter out the fine sediments although private water systems without filters may notice turbidity at the tap. We recommend that the EIS contain an analysis which factors in natural conditions, the filtration system currently used, and estimates of turbidity and settleable solids produced from proposed activities in Saltery Cove that supports the conclusion that the Lodge's filtration system can filter out fine sediments. The EIS should also demonstrate that additional turbidity would not impair the ability of the Lodge's filtration system to filter out microorganisms and analyze the reasonable foreseeable outcomes of the Lodge being forced to change out filters more frequently. We are concerned that an increase in turbidity would decrease the effectiveness of the filtration system to filter out bacteria and viruses and that the

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costs associated with frequent and repeated replacement of filter might lead the Lodge owner(s) to bypass the filtration system or close the Lodge. Conversations with ADEC staff indicate that fine sediment produced from proposed Alternatives 4 and 5 could require replacing filters every hour at an estimated cost of $100.00 per filter. The EIS should analyze the fiscal implications of treating drinking water at the Lodge with implementation of Alternatives 4 and 5.

We recommend that the EIS also discuss the impacts of harvest activities to the hydrograph and timing of flows in watersheds that serve as drinking water sources. We are concerned that harvesting could result in a faster hydrologic response and consequently greater overland flow, less storage (perhaps with more frequent periods of low or no flows), and a greater potential of erosion.

As a partner with ADEC in the implementation of programs protecting water quality in Alaska, we strongly recommend that the Forest Service identify a preferred alternative in the final EIS that would meet WQSs and DWRs and be protective of public health and that the Forest Service adopt such an alternative in the Record of Decision (ROD). Unless the EIS can demonstrate otherwise, we believe that Section 313 of the Clean Water Act, which describes the responsibilities of federal agencies to comply with water quality standards established under the Act, precludes the Forest Service from adopting Alternatives 4 or 5.

Disclosure of Applicable Water Quality Standards and Drinking Water Regulations

We are concerned that the EIS does not identify all applicable WQSs and DWRs for this project. This is key information that the decisionmaker and the public should know to determine the significance of potential effects on water quality and agency requirements to protect water quality. The EIS should identify three water quality requirements for this project.

Antidegradation Policy. The EIS should discuss the Antidegradation Policy (18 AAC 70.015) which prohibits activities that degrade existing water quality, even if existing conditions are above minimum requirements specified in WQSs. The Policy allows ADEC to grant a short-term variance to the Antidegradation Policy. However, in order for a variance to be considered, the party asking for the variance needs to demonstrate that the variance 1) is needed to accommodate an important economic or social development, 2) would not violate criteria or the whole effluent toxicity limit, 3) would still be fully protective of existing beneficial uses, 4) and would employ pollution prevention, control, and treatment methods for all wastes and discharges that are deemed most effective and reasonable by ADEC. We recommend that the EIS state whether implementation of the action alternatives would require a short-term variance. If so, the EIS should identify the activities and time frame associated with the lowering of existing water quality and include an analysis that addresses the four criteria identified above.

Criteria for Alaska Water Quality Standards. The EIS should list all criteria potentially impacted by this project that need to be met to comply with WQSs. The EIS briefly discusses the WQS for turbidity but not for sediment. We believe that, at a minimum, the EIS should state the maximum criteria for both turbidity (5 NTUs above natural conditions) and sediment (no

measurable increase in concentration of settleable solids) found at 18 AAC 70.020 and describe the natural conditions upon which the turbidity and sediment standards are based.

Drinking Water Regulations. We recommend that the EIS identify public water systems found in the project area and water quality thresholds established by the State of Alaska Drinking Water Regulations (see 18 AAC80.015(a)). The EIS should include information contained in the February 6, 2001 ADEC memo pertaining to DWRs. For example, the memo states that the turbidity requirements at Sportsman's Cove Lodge are a maximum turbidity level of 1.49 NTUs, an average daily maximum of 0.5 NTU, and a storm event maximum of 5 NTUs.

Adaptive Management

The EIS seems to indicate that the Forest Service is proposing to use an adaptive management approach to meet WQSs and other water quality requirements with statements such as "turbidity monitoring would be used during construction and haul to keep turbidity within Alaska state water quality standards." To minimize the considerable uncertainty often associated with using an adaptive management approach, we recommend that the EIS contain an adaptive management strategy which includes1) best predictions of the level of water quality achieved with implementation of action alternatives (by using the results of effectiveness monitoring for a similar project in a similar watershed, BMP effectiveness results, sediment transport modeling, etc.); 2) comparisons between predicted water quality levels and those levels required by WQSs and DWRs; 3) a monitoring plan with monitoring objectives and a description of monitoring protocols (the who, when, where, and how of monitoring); and 4) mitigation measures and other actions to address gaps in knowledge and to react to monitoring results.

Alternatives

We are concerned that there appears to be a lack of reasonable alternatives for the decisionmaker to choose from. Alternatives 4 and 5 would appear to violate WQSs and not comply with DWRs. The EIS characterizes Alternatives 2 and 3 as economically unviable. NEPA requires that an EIS include a full range of reasonable alternatives and denotes the importance of this by characterizing the alternatives section as the heart of the EIS (40 CFR 1502.14). If possible, we recommend that the Forest Service modify Alternatives 4 and 5 to meet WQSs and to comply with DWRs and Alternatives 2 and 3 to make these alternatives more economically viable. For example, the Forest Service could remove outlying units in Alternative 2 or change the alignment of the proposed road in the Sunny Cove watershed for Alternative 3 to reduce the distance that helicopters would need to transport logs.

Modifications should also be made to cause fewer impacts to aquatic life, the benthic environment, and wildlife habitat (40 CFR 1500.2(e)). We are pleased that conversations with Forest Service staff have indicated that the Forest Service is planning to modify action alternatives by using stringer bridges in lieu of culverts in the Sunny Creek watershed. We recommend that the EIS also substitute using low-angle ramp systems (which the EIS incorrectly characterizes as having the least resource impacts) with the use of low-profile, temporarily placed

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shot rock barge bulkheads, such as that being proposed for the Threemile Arm Log Transfer Facility (LTF) on Kuiu Island. The low-profile, temporarily placed shot rock barge bulkhead design would not only impact fewer resources and be comparable in price to the low-angle ramp system, the LTF's ability to be removed would better address the community privacy and security objective found in the project's purpose and need statement.

Other Concerns

Action alternatives appear to do a good job avoiding rare and productive wetlands, however, protection should be afforded to ALL wetlands. We recommend that the EIS 1) define rare and productive (i.e., high value wetlands), 2) include a map of the project area that shows all wetlands and those that meet the definition of high value wetlands and 3) identify the locations of proposed road alignments relative to the wetlands. We also recommend that the EIS reconcile requirements to protect to all wetlands as specified in the Forest road exemption (BMP 232.3) and limiting protection to high value wetlands as was done in the EIS. The EIS should also clearly state that forest roads will be closed following harvest and commitments to that effect should be made in the ROD if the Forest road exemption is planned to be used.

We recommend, consistent with the recommendation made in the Floodplains, Soils and Wetlands Resources Report, that the final EIS incorporate information on steep slopes in 22 units from the reference reconnaissance report written by Glen Pierce.

The Floodplains, Soils and Wetlands Resources Report indicates that units at the north end of Monie Lake maybe unmerchantable. We recommend that the EIS remove road construction and harvest activities if logging in these areas is not economically viable.

We were unable to determine whether minority or low-income populations would be adversely affected by the proposed project. We recommend that the EIS be revised to indicate whether minority or low-income populations would be affected and, if so, and Environmental Justice analysis should be included in the EIS pursuant to Executive Order 12898.

The EIS should list the contents of the appendices in the table of contents.

U.S. Environmental Protection Agency Rating System for Draft Environmental Impact Statements Definitions and Follow-Up Action*

Environmental Impact of the Action

LO -- Lack of Objections

The Environmental Protection Agency (EPA) review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC -- Environmental Concerns

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce these impacts.

EO -- Environmental Objections

The EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no-action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU -- Environmentally Unsatisfactory

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

Adequacy of the Impact Statement

Category 1 -- Adequate

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis of data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2 - - Insufficient Information

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonaby available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses or discussion should be included in the final EIS.

Category 3 - - Inadequate

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the National Environmental Policy Act and or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

* From EPA Manual 1640 Policy and Procedures for the Review of Federal Actions Impacting the Environment. February, 1987.

Doc. No. 0572
File Desig. D.4.6.

"Leeds, John C POA02" <John.C.Leeds@poa02.usace.army.mil>

01/02/2001 01:12 PM

To: "glawton@fs.fed.us" <glawton@fs.fed.us>
cc:
Subject: Cholmondeley Timber Sales DEIS

I was reviewing the DEIS, and noticed in Appendix F, a reoccurring statement: "See attached National Marine Fisheries and U.S. Fish and Wildlife agencies report." I was unable to locate these reports.

Hint: When the COE permit application(s) are submitted for the LTFs, a copy of the appropriate report should be attached. This would help us to respond to NMFS with respect to their Essential Fish Habitat recommendations and would generally help to speed the permit process along!

C-1

John Leeds
Juneau Field Office

Doc. No. 0855
File Desig. D4.b

March 12, 2001

Regulatory Branch
East Section

Mr. Gary Lawton
U.S. Forest Service
Craig Ranger District
Tongass National Forest
P. O. Box 500
Craig, Alaska 99921

Dear Mr. Lawton:

These comments are submitted in response to the November 2000, Draft Environmental Impact Statement (DEIS), for the Cholmondeley Timber Sales on Prince of Wales Island in the Craig Ranger District of the Tongass National Forest, Alaska. Our comments are presented as a regulatory agency, as opposed to a commenting agency, and the requirements detailed below are requirements of federal law and/or regulation.

Corps of Engineers (Corps) Jurisdiction: Based on information provided in the DEIS, we concur that wetlands and waters which are under the Corps' regulatory jurisdiction occur within the project area. Our regulatory authorities that relate to timber harvest operations are based on two laws: Section 10 of the Rivers and Harbors Act of 1899 (33 USC 403) prohibits the obstruction or alteration of navigable waters of the United States (U.S.), and Section 404 of the Clean Water Act (33 USC 1344) prohibits the discharge of dredged or fill material into waters of the U.S., including wetlands, without a Department of the Army (DA) permit.

Wetland Impacts: Wetlands are defined as areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands include "muskegs", forested swamps, marshes, bogs, and similar areas. The DEIS states on page 3-75 and 3-76 that the preferred Alternative 5 proposes to harvest on 761 acres of forested wetlands (3-75) and will create 16.7 miles of road in Monie Lake, Saltery Creeek and Sunny Cove; this road construction will affect 81 acres of forested wetland, short sedge complex and emergent sedge complex.

- Clean Water Act 404(f) Exemptions: Sections 404(f)(1)(a) and (e) of the Federal Clean Water Act specifically exempt silviculture, timber harvesting, and related road construction activities from permit requirements for the discharge of dredge and fill material in wetlands, provided certain conditions are met. Section 404(f)(1)(a) of the Clean Water Act states that normal silviculture activities for the production of forest products, which are part of an established, ongoing operation, are not subject to regulation under Section 404 of

the Clean Water Act. However, in order to qualify, the activity must not result in a conversion of an area of waters of the U.S. (including wetlands) to a use to which it was not previously subject, whereby the flow or circulation of waters of the U.S. may be impaired or the reach of such waters reduced.

In addition, section 404(f)(1)(e) states that the construction or maintenance of forest roads for silviculture activities is exempt from regulation under Section 404 of the Clean Water Act, ***provided the roads are constructed and maintained in accordance with Best Management Practices*** (BMPs) listed at 33 CFR 323.4(a)(6) to assure that flow and circulation patterns and chemical and biological characteristics of waters of the U.S. are not impaired, that the reach of the waters of the U.S. is not reduced, and that any adverse effect on the aquatic environment is otherwise minimized. A copy of the mandatory BMPs is enclosed with this letter, and your particular attention is directed to BMPs (i) through (x). In order to qualify for the exemption, forest roads must be used for the sole purpose of silvicultural activities.

Wetland Mapping: For Corps-regulated activities, the standard for delineation of wetlands is the Corps of Engineers, Wetland Delineation Manual (1987), including any supplemental guidance or subsequent revisions. The Corps' policy is to verify all preliminary jurisdictional determinations or jurisdictional determinations done by anyone other than the Corps, to assure the work is consistent with the 1987 Wetland Delineation Manual (WDM). Valid sources of information, such as the NWI maps, the Tongass National Forest Resource Inventory, plant association data, or the Classification and Delineation of Wetlands Using Soils and Vegetation Data, Tongass National Forest (DeMeo, et.al. 1989), are suitable for supporting one or more wetlands criteria (soils, vegetation, hydrology) at the start of the NEPA process.

Wetland mapping for this project is based for the most part on the interpretation of the USDA Soil Resource Inventory as provided in the National Co-operative Survey developed in coordination with NRCS. Some field validation was carried out by the USFS for high value wetlands in the Cholmondeley area and correlation with the accuracy of the interpretation was found to be high (Landwehr, USFS; pers. comm.).

- Stream Crossings: BMPs ii, iii, iv, and vii address requirements for meeting the Clean Water Act 404(f)(1)(e) exemption for silvicultural roads, concerning work in the vicinity of streams. Five stream crossings are identified for Alternative 5 (preferred); the DEIS notes that the Forest Service has recently increased emphasis on road construction and maintenance quality under the Forest Plan standards and guidelines and the Soil and Water Conservation Practices (FSH 2509.22). Information provided indicates all fish stream crossings now undergo thorough review by USFS biologists, hydrologists, engineers and by ADF&G biologists to ensure fish passage standards are met.

Based on the information provided in the DEIS, the above crossings may be in compliance with Clean Water Act Section 404 (f)(1)(e) BMPs (iv) and (vii). Since the impacts to aquatic resources are ongoing,

all required remedial action should be prioritized and completed concurrent with construction. It is the Corps of Engineers responsibility to ensure compliance with the BMPs noted above. Our objective is to work with the Forest Service to obtain your voluntary compliance, should this be required for any of the above stream crossings.

- Road Closure: Appendix C (Project Road Cards) designates recreation as "accepted" for most roads and harvest units (includes hikers, bicycles and often ORV's). Where listed at all, motorized vehicles are "discouraged" and recent communication with USFS (Landwehr, pers. comm) has advised that even stricter measures would be taken with regard to use by motorized vehicles (i.e. road closure after harvest in many cases). Therefore DA authorization for road construction would not be required.

- Log Transfer Facilities (LTF): Pages F-2 to F-8 of the DEIS indicates that three proposed LTFs have been identified as alternatives for the project. These are the Chom #1, Clover Bay (CB-3), and NEMK LTF sites. Site Chom # 1 was the site recommended by the USF&WS, this recommendation comes from the fact the marine habitat has already been affected by previous activities; the Clover Bay (CB-3) and NEMK LTF sites were the recommended alternatives by the USFWS and NMFS. The sub-alternatives, (1) dry land transfer from bulkhead to barge and (2) the chain slide system were not considered practical. Corps authorization is required under all alternatives for the discharge of dredged or fill material below the high tide line (extreme high water) or in wetlands, and for the construction of structures in navigable waters. In this regard, your DA permit application would need to include appropriate plans depicting all LTF work requiring DA authorization, and specifying the quantities and types of material proposed to be discharged or excavated below the high tide line and in all other areas subject to Corps jurisdiction, including wetlands. Your plans should also reflect any other work proposed in waters of the U.S., including wetlands, such as floating walkways, logging camps, outfalls, intakes, captive barges, log rafting areas, sort yards, etc. Wetland mapping prepared in accordance with the WDM is required for areas impacted by project components requiring DA authorization, (e.g., land-based camps, sort yards, LTF access roads, etc.). In addition, authorization from the EPA would also be required for the transfer of logs into marine waters under National Pollutant Discharge Elimination System Section 402 permit requirements.

- DA permit evaluation: Impacts to waters of the U.S. should be a major consideration during your review of alternatives with regard to both meeting the Federal BMPs, and for those project components which would require individual Section 10 of the Rivers and Harbors Act of 1899 or Section 404 of the Clean Water Act authorization. For wetland development proposals requiring Corps authorization, Corps permits are available only for projects which clearly demonstrate compliance with the Clean Water Act Section 404(b)(1) guidelines, which state that no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, as long as the alternative does not have other

significant adverse environmental consequences. In those cases where a non water-dependent activity associated with a discharge is proposed for a "special aquatic site", such as wetlands, practicable alternatives are presumed to exist unless clearly demonstrated otherwise. An alternative is considered practicable if it is available and capable of being accomplished after taking into consideration costs, existing technology and logistics in light of overall project purpose.

Enclosed is a copy of our Regulatory Program Applicant Information pamphlet, which includes a permit application. This pamphlet is designed to assist you in applying for a DA permit and provides general information and guidance on how to complete the permit application.

We appreciate the opportunity to review this DEIS, and look forward to continued coordination for this and future timber sales. We are available for further discussion or clarification of our comments, as necessary. Please contact Valanne Glooschenko at the letterhead address, by telephone at (907) 753-2786, or by FAX at (907)753-5567 if you have any questions concerning our requirements.

Sincerely,

Valanne Glooschenko
Regulatory Specialist

Enclosure

RCF:

Mr. Dave Stumbaugh, ADEC, Juneau, Alaska 99801-1795
Ms. Lana Shea, ADFG, Douglas, Alaska 99824-0020
Ms. Lorraine Marshall, CWS, CGC, Juneau, Alaska 99[illegible]
Mr. Mark Ger, EPA, Anchorage, Alaska 99510-7588
Mr. Merrin D. Holmberg, USFWS, Juneau, Alaska 99801-7100
Dr. Steven T. Zimmerman, Chief, NMFS, Juneau, Alaska 99801-1668

Section 404 of the Clean Water Act Exemptions
Best Management Practices for Forest Road Construction
33 CFR 323.4(a)(6)

33 CFR 323.4(a)(6), identifies Best Management Practices (BMPs) which must be met in order to claim an exemption from Section 404 permitting requirements for forest roads which are constructed for the sole purpose of silvicultural activities.

i. Permanent roads, temporary access roads, and skid trails in waters of the US shall be held to the minimum feasible number, width, and total length consistent with the purpose of specific farming, silvicultural, or mining operations, and local topographic and climatic conditions;

ii. All roads, temporary or permanent, shall be located sufficiently far from streams or other water bodies (except for portions of such road which must cross water bodies) to minimize discharges of dredged or fill material into waters of the U.S.;

iii. Road fill shall be bridged, culverted, or otherwise designed to prevent the restriction of expected flood flows;

iv. Road fill shall be properly stabilized and maintained during and following construction to prevent erosion;

v. Road fill shall be made in a manner that minimizes encroachment of heavy equipment within waters of the U.S., (including adjacent wetlands) that lie outside the lateral boundaries of the fill itself;

vi. Vegetative disturbance in waters of the U.S. shall be kept to a minimum;

vii. Road crossings shall not disrupt the migration or other movement of those species of aquatic life inhabiting the water body;

viii. Borrow material shall be taken from upland sources whenever feasible;

ix. The discharge shall not take, or jeopardize the continued existence of a threatened or endangered species as defined under the Endangered Species Act, or adversely modify or destroy the critical habitat of such species;

x. Discharges into breeding and nesting areas for migratory waterfowl, spawning areas, and wetlands shall be avoided if practical alternatives exist;

xi. The road fill shall not be located in the proximity of a public water supply intake;

xii. The discharge shall not occur in areas of concentrated shellfish production;

xiii. The discharge shall not occur in a component of the National Wild and Scenic River System;

xiv. The road fill shall consist of suitable material free from toxic materials in toxic amounts;

xv. All temporary fills shall be removed in their entirety and the area restored to its original elevation.

Doc. No. 0526
File Desig. D.4.h

STATE OF ALASKA

OFFICE OF THE GOVERNOR

OFFICE OF MANAGEMENT AND BUDGET
DIVISION OF GOVERNMENTAL COORDINATION

TONY KNOWLES, GOVERNOR

RECEIVED
FEB 15 2001
CRAIG RANGER DISTRICT

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February 12, 2001

Mr. Gary Lawton, U.S. Forest Service
Craig Ranger District
P.O. Box 500
Craig, AK 99921

Dear Mr. Lawton:

SUBJECT: CHOLMONDELEY TIMBER SALE NEPA COMMENTS
State ID No. 0101-04JJ

The State of Alaska has reviewed the Draft Environmental Impact Statement (DEIS) for the U.S. Forest Service's proposed Cholmondeley Timber Sale on Prince of Wales Island, and offers the following comments under the National Environmental Policy Act. The State has significant concerns about some aspects of this sale, as discussed in the enclosed comments, but feels that adoption of our suggested modifications to the project can provide a continuing supply of timber for Alaskans while protecting the health and associated livelihoods of local Alaskans affected by the project.

Specifically, this project proposes to harvest between 23.4 and 35.2 MMBF of timber from approximately 941 to 1,511 acres, and to construct up to 22.3 miles of specified road and 3.4 miles of temporary road, depending on alternative. In addition, up to three log transfer facilities (LTFs) would be developed at locations on McKenzie Inlet, Clover Bay, and Sunny Cove. These facilities will undergo separate Alaska Coastal Management Program (ACMP) consistency reviews, and will be subject to DEC Certificates of Reasonable Assurance (401 Certifications).

The DEIS identified Alternative 5 as the Forest Service's preferred alternative for this project. This alternative proposes to harvest approximately 35.2 MMBF of timber from an estimated 1,511 acres, and to construct 22.3 miles of specified road and 3.4 miles of temporary road. In addition, it would develop all three of the proposed LTFs. We offer comments (attached) pursuant to 6 AAC 50 of the Alaska Coastal Management Program (ACMP) and Section 319 of the Clean Water Act (CWA). These comments collectively address ACMP, CWA Section 319, and NEPA concerns, with ACMP standards cited, where applicable. These ACMP comments are of a preliminary nature only, as we are currently coordinating a review of the U.S. Forest Service's consistency determination under the State ID Number AK 0101-20JJ.

If you have questions, I can be reached at 465-3177. The state appreciates the opportunity to provide NEPA comments on this sale.

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Sincerely,

Jennifer R. Garland
Project Review Coordinator

Enclosure

Cc:
** Kevin Hanley, DEC, Juneau
** Moira Ingle, DFG, Craig
** Lana Flanders, DFG, Juneau
** Tom Paul, DFG/DWC, Juneau
** Jim Eleazer, DNR/DOF, Juneau
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** Rex Blazer, DGC, Juneau
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**=email transmission

Comments Received from the Department of Environmental Conservation

Both Alternatives 4 and 5 of those listed in the DEIS are inconsistent with the ACMP and with TLMP Soil and Water Standard and Guideline S&W112.A. If implemented, they would create conditions that are in violation of both the Alaska Water Quality Standards and the Alaska Drinking Water Regulations, particularly the Source Water Protection Requirements. The inconsistent elements of these alternatives are: a.) the proposed 2190000 Road and its crossings of two domestic water source streams in the Saltery Cove watershed, b.) the use of culverts on the four streams that are crossed by the 2170000 Road in the Drinking Water Creek watershed at Sunny Cove, and c) Harvest on Slopes Greater than 72 Percent.

These elements make these Alternatives inconsistent with several standards of the ACMP found in the Forest Practices Act and Regulations. Specifically, AS 41.17.060(b)(5) and (c)(5) state, respectively, "significant adverse effects of erosion and mass wasting on water quality and fish habitat shall be prevented or minimized" and "there may not be significant impairment of the productivity of the land and water with respect to renewable resources." In addition, 11 AAC 95.185(b) states that "For all lands, the operations recognized under this chapter shall be conducted in a manner that does not cause or constitute a substantial factor in causing a degradation of water quality." (emphases added)

In addition, the road is inconsistent with TLMP Soil and Water Standard and Guideline S&W112.A, which states, in part, *"Maintain water quality consistent with Alaska Water Quality Standards for water supply (18 AAC 70) and Alaska Drinking Water Regulations for source water protection (18 AAC 80.015(a)). Avoid management activities which are likely to pollute a known public water system or violate Alaska Water Standards"* (emphasis added).

Alternative Measures which must be pursued in lieu of Alternatives 4 or 5 are outlined below. Adoption of the alternative measures below would allow the activity to proceed in a manner consistent to the maximum extent practicable with the ACMP

Discussion:

The Cholmondeley Timber Sale project is relatively unique to other timber sale projects on the Tongass in that it directly affects residents, lodge owners (the viability of their businesses), and the domestic drinking water that they depend on. In the spirit of collaborative stewardship, these people have, since as early as the Notice of Intent, attempted to work proactively with the Forest Service to develop a timber sale that would address their concerns. This is particularly true of the residents of Saltery Cove, who have repeatedly asked the Forest Service to not build a road in their watershed, especially one which crosses the streams they use as their sources of drinking water. They have even indicated that logging in the watershed might be acceptable, provided that the units are yarded by helicopter.

In addition, the Forest Service and the department have discussed this project on several occasions, particularly with respect to the proposed road construction within the Saltery Cove watershed. On each occasion, we stated our objections to and concerns for constructing this road, and recommended that harvesting either be avoided altogether in the watershed or that the units be yarded by helicopter as proposed under Alternative 3. We also stated that if a road must be constructed in the Sunny

Cove watershed, temporary log stringer bridges, rather than culverts, should be installed to minimize or avoid the potential for sedimentation of the domestic drinking water source of the residents of Sunny Cove. However, in examining the alternatives presented in the DEIS, it appears that all of the concerns expressed by the residents, lodge owners, and the department have not been addressed or mitigated in any meaningful way.

Specifically, four action alternatives were developed to meet the purpose and need of this project. Of these, Alternatives 2 and 3 involve the extensive use of helicopter yarding and do not construct the road within the Saltery Cove watershed. Alternatives 4 and 5, on the other hand, not only construct this road, but also harvest Unit 616-010 in the Clover Bay viewshed (which the Clover Bay Lodge owners expressed concern about).

In particular, Alternative 3 was specifically developed to address the concerns expressed by the residents and lodge owners in the project area, especially those regarding domestic water quality. Alternative 2 also addresses most of these concerns by the exclusive use of helicopter yarding. However, according to Table 3-3 (DEIS, page 3-31), these alternatives are not economically viable, as the Present Net Values (PNVs) of both of them are substantially negative at -$9,029,444 for Alternative 2, and -$5,651,706 for Alternative 3. Conversely, the PNVs of Alternatives 4 and 5 are substantially positive at $4,146,726 and $5,036,556, respectively. Stumpage values are likewise negative under both high and low market conditions for Alternatives 2 and 3, and positive for Alternatives 4 and 5.

The DEIS (pages 3-29 through 3-37) indicates that the reason for the deficit nature of Alternatives 2 and 3 is the amount of helicopter yarding and the yarding distances that would be required. It then describes, in great detail, why the helicopter yarding proposed under these alternatives produces uneconomical timber sales with negative stumpage rates (e.g., *"Stumpage values are greatly negative in low markets when the yarding method uses helicopters exclusively, as found in all sales for Alternatives 2 and 3. By contrast, the sales that use cable yarding methods have positive stumpage values"* -- i.e., Alternatives 4 and 5).

This demonstrates that Alternatives 2 and 3 are essentially "straw" alternatives that are not capable of being implemented because they are not economically viable. It also indicates that by developing these alternatives, the DEIS has artificially constrained the decision-maker into selecting either Alternative 4 or Alternative 5, both of which construct the road in the Saltery Cove watershed and harvest Unit 616-010 in the Clover Bay viewshed. Other less invasive alternatives could have been developed which provide ample timber sale volumes while better addressing and mitigating the concerns of the directly affected residents and lodge owners. Some of these include the following:

Modified Alternative 2: Since, for the most part, the DEIS attributes excessive helicopter yarding distances as the reason for the substantially deficit nature of Alternative 2, a more economically viable helicopter-only alternative which harvests only those units within 1.5 miles of saltwater should be developed. Such an alternative would result in an overall project volume of approximately 22.3 MMBF. It would delete the following units from the Alternative 2 unit pool: 614-034b (2,276 MBF), 614-005 (567 MBF), 675-037 (1,103 MBF), 675-033 (3,786 MBF), 616-016 (648 MBF), 616-013 (1,240 MBF), 616-021 (932 MBF), and 616-275 (1,917 MBF). Unit 616-010 (396 MBF) should also be deleted to avoid impacts to the continued viability of the Clover Bay Lodge. This deleted volume totals approximately 12.9 MMBF. The volume from the remaining units should be flown directly to barges to avoid the bark loss and deposition associated with inwater log transfer

and rafting. In addition, the harvest prescriptions that are proposed for Alternative 3 should be implemented for Units 614-001a, -001b, -002, and -034a in the Saltery Cove watershed.

This alternative would best mitigate the overall concerns of the residents and lodge owners in the project area, and would still provide an ample timber sale volume. In addition, since no roads or LTFs would be constructed, it would provide the best assurance that water quality and fish habitat will be protected. Therefore, the department strongly recommends that it be developed and selected for the Record of Decision for this project.

Modified Alternative 3: If the economic viability of the Modified Alternative 2 needs to be improved, then the road in the Sunny Cove watershed could be built to directly access Unit 675-033 and provide a shorter flight distance to Unit 675-037. However, if this road is built, then temporary log stringer bridges or similar structures, not culverts, must be used at the four stream crossings that are capable of generating sediment to Drinking Water Creek. This alternative would result in a total project volume of approximately 27.2 MMBF.

Variation of Modified Alternative 3: As a variation of Modified Alternative 3, all units within the Saltery Cove watershed would be deleted. This would result in an overall project volume of approximately 19.9 MMBF, and would avoid the potential for slope stability problems within the steep units in the watershed, as well as increased blowdown in this highly windthrow-prone area.

All of these suggested alternatives would be consistent with the ACMP and TLMP Standard and Guideline S&W112.A, and would provide reasonable assurance that the Alaska Water Quality Standards (18 AAC 70) and Alaska Drinking Water Regulations (18 AAC 80) would be met. Conversely, Alternatives 4 and 5, as described in the DEIS, are **inconsistent** with these standards and regulations for the reasons discussed below and, therefore, should not be considered for the Record of Decision.

Inconsistency of Alternatives 4 and 5:

As indicated above, both of these alternatives are inconsistent with not only the ACMP, but also with TLMP Soil and Water Standard and Guideline S&W112.A. In addition, if implemented, they would create conditions that are in violation of both the Alaska Water Quality Standards and the Alaska Drinking Water Regulations, particularly the Source Water Protection Requirements. The reasons for this are: a.) the proposed 2190000 Road and its crossings of two domestic water source streams in the Saltery Cove watershed, and b.) the use of culverts on the four streams that are crossed by the 2170000 Road in the Drinking Water Creek watershed at Sunny Cove.

a.) 2190000 Road in the Saltery Cove Watershed: As indicated in the DEIS (page 3-4), this road crosses two streams that are used *"for domestic water by several yearlong and seasonal residents in Saltery Cove. Sportsman's Cove Lodge operates a Class B (greater than 25 people) public water system. Class B public water systems are required to have filtration and treatment systems. The private water systems are not required to have filtration or treatment."* As such, the Sportsman's Cove Lodge falls under the Source Water Protection Requirements [18 AAC 80.015] of the Alaska Drinking Water Regulations, and the private water systems fall under the Alaska Water Quality Standards, specifically the Antidegradation Policy [18 AAC 70.015] and the standard for water supply -- drinking, culinary, and food processing [18 AAC 70.020(b)(1)(A)(i)].

The Source Water Protection Requirements state that "A person may not (1) cause pollution or contamination to enter a public water system; or (2) create or maintain a condition that has a significant potential to cause or allow the pollution or contamination of a public water system." This regulation applies to activities that cause increased turbidity or other contamination in the source water for a public water system. The responsible party (in this case, the Forest service) can be charged for a violation of 18 AAC 80.

The Antidegradation Policy states, in part, that "existing water uses and the level of water quality necessary to protect existing uses must be maintained and protected," unless otherwise authorized by the department. Under the Alaska Water Quality Standards for drinking water, turbidity "May not exceed 5 nephelometric turbidity units (NTU) above natural conditions when the natural turbidity is 50 NTU or less, and may not have more than 10% increase in turbidity when the natural turbidity is more than 50 NTU, not to exceed a maximum increase of 25 NTU."

As described in the DEIS, the construction and use of the 2190000 Road and its associated stream crossings would create conditions that are in violation of these regulations. According to the DEIS (page 3-6), *"These crossings are approximately **one-half mile** from the nearest residence. Fine sediment would **likely** enter the stream in Unit 614-001b during installation of the log stringer bridges, and hauling of rocks and logs. **The topography adjacent to the stream is such that the road would likely slope toward the stream. Fine sediment would be generated from the road surface during wet weather. Road location and design could reduce, but not eliminate, fine sediment inputs.**"* (emphases added) Given the physical features at the crossing site, it is very likely that the road would not only deliver sediment to the stream during construction and use, but also, would continue to be a chronic (long-term) producer of sediment even after it is closed. Also, in addition to the sediment, hydrocarbons and petrochemicals from the construction equipment and log trucks would likely be delivered to the stream, compounding the threat to human health and the public and private water systems, which are incapable of treating water to remove such contaminants.

The DEIS goes on to state that *"The lodge's filtration system can filter out the fine sediments though private water systems without filters may notice turbidity at the tap."* However, if turbidity is noted at the tap, then impacts to drinking water will already have occurred, and the water quality standard will already have been exceeded, as turbidity normally is not discernible to the human eye until it greatly exceeds 5 NTU over background levels.

In addition, impacts to the Sportsman's Cove Lodge public drinking water system are not acceptable under any circumstance and must be prevented. Public water systems, such as this, must meet treatment design standards that reflect the existing watershed and water quality conditions at the time of review and approval. The review must include background water quality data that substantiates the type of water treatment design used for the particular water source. State turbidity standards are applied to each system according to the type of filtration design that is approved and constructed. For Sportsman's Cove Lodge, the maximum turbidity level is 1.49 NTU and an average daily maximum of 0.5 NTU. For storm events, the maximum level is 5 NTU. By regulation, the system's turbidity is monitored daily by the operator. Any exceedence of the turbidity standards would constitute a violation, which would be enforced by the state and reported to the EPA.

The sediment that will be generated from the construction and use of the 2190000 Road will cause turbidity exceedences beyond the range of conditions that the treatment system was initially

designed to handle. Such exceedences can cause a greater public health risk associated with microbiological contaminants such as giardia and cryptosporidium.

In addition to the system's filtration design standards for turbidity, disinfection treatment standards are also applied and work in conjunction with the filtration standards. When turbidity exceeds the filtration design standards, disinfection levels are directly affected, thereby rendering the process ineffective. Disinfection levels are regulated by the state and must be monitored daily by the operator. Levels that drop below safe drinking water standards constitute a violation which would, likewise, be enforced by the state and reported to the EPA.

Both turbidity and disinfection violations require public notice for cause, associated health risks, and violation resolution. Currently, the Sportsman's Cove Lodge is in compliance with state standards. Non-compliance as a result of upstream Forest Service activities would trigger state enforcement action against the Forest Service. In addition, if Sportsman's Cove Lodge is forced to modify its public water system due to persistent elevated levels of turbidity, such a modification would be costly, time-consuming, and would disrupt lodge operations, causing substantial economic impact to the owners. Consequently, it is imperative that impacts to water quality be prevented.

The DEIS (page 3-6) also states that *"Residents of Saltery Cove will monitor water quality in domestic water supply streams and notify the Forest Service if water quality deteriorates. The Forest Service will take action to insure unacceptable conditions are fixed."* However, this statement is troubling and untenable because, as indicated above, if water quality deteriorates, then the impacts will already have occurred. Furthermore, none of the residents that we have spoken with have agreed to do this, nor do they have turbidimeters or the knowledge and experience to calibrate and use them even if they did. The onus should not be on the water users to monitor the effects on their drinking water sources from upstream Forest Service activities; rather, it should be incumbent on the Forest Service to prevent such effects from occurring.

In addition, in several places, the DEIS identifies capping of the water supply intakes at both Saltery Cove and Sunny Cove as an additional mitigation measure during upstream construction activities. However, the residents should not be forced to cap their water intakes and go without water for some unspecified period of time. As indicated above, the Forest Service must prevent situations from occurring which would require the capping of the intake pipes.

For the reasons discussed above, the 2190000 road would also be inconsistent with TLMP Soil and Water Standard and Guideline S&W112.A, which states, in part, *"Maintain water quality consistent with Alaska Water Quality Standards for water supply (18 AAC 70) and Alaska Drinking Water Regulations for source water protection (18 AAC 80.015(a)). Avoid management activities which are **likely** to pollute a known public water system or violate Alaska Water Standards"* (emphasis added).

It would also be inconsistent with several standards of the ACMP found in the Forest Practices Act and Regulations. Specifically, AS 41.17.060(b)(5) and (c)(5) state, respectively, "significant adverse effects of erosion and mass wasting on water quality and fish habitat shall be prevented or minimized" and "there may not be significant impairment of the productivity of the land and water with respect to renewable resources." In addition, 11 AAC 95.185(b) states that "For all lands, the operations recognized under this chapter shall be conducted in a manner that does not cause or constitute a substantial factor in causing a degradation of water quality." (emphases added)

Therefore, other alternatives that avoid constructing this road must be pursued in lieu of Alternatives 4 or 5. As indicated above, we strongly recommend that our suggested Modified Alternative 2 be selected as the final alternative for the Record of Decision as it would best mitigate the overall concerns of the residents and lodge owners in the project area, while still providing an ample timber sale volume.

2170000 Road in the Drinking Water Creek Watershed at Sunny Cove: Drinking Water Creek provides the domestic drinking water for the residents and property owners at Sunny Cove. The construction of the 2170000 Road, as proposed under Alternatives 3, 4, and 5, will require four crossings on tributaries to this stream, two of which are located approximately one-half mile upstream of the intake pipe. According to the DEIS (page 3-22 and C-6), culvert installations are proposed at all four crossing sites, with planned mitigation consisting of settling ponds, riprap and erosion control fabric, and timing of instream work to coincide with low flow conditions. The DEIS concludes that *"Turbid water entering the domestic water intakes can be held to levels slightly higher than natural bank erosion when all of these recommendations are followed. Capping of water intakes and timing culvert installation, rock and log haul to avoid high flow periods would also reduce sediment at the intakes."*

As indicated above, situations that would require the capping of domestic water intakes should not be allowed to occur by the Forest Service, especially when reasonable alternatives are available to prevent the necessity of having to take this action. Despite the mitigation measures that are proposed to minimize the amount of sediment delivery during culvert installation, the fact remains that, no matter how stringent they are applied, sediment will be generated during excavation activities and would very likely be transported downstream to the water intake. The standard 48-hour variance that is provided in the Forest Practices Regulations for exceeding State Water Quality Standards during culvert installations should not be used where drinking water is a concern.

As mentioned to the Forest Service during our previous discussions regarding this project, log stringer bridges must be used at these crossing sites to avoid the substantial sedimentation that would occur during culvert installation and removal. If installed correctly, these short bridges would require no instream work and would, therefore, maintain water quality at or near background levels and be in compliance with the Alaska Water Quality Standard for turbidity and the Antidegradation Policy. They are also necessary in order to be consistent to the maximum extent practicable with AS 41.17.060(b)(5), which states "significant adverse effects of erosion and mass wasting on water quality and fish habitat shall be prevented or minimized."

Documentation of the Analyses for Allowing Harvest on Slopes Greater than 72 Percent:

TLMP standard and guideline S&W112.1.A.5 states *"At the Forest Plan level, slope gradients of 72% or more are removed from the tentatively suitable timber base due to high risk of soil mass movement and accelerated erosion of class IV channel systems. At the project planning level, the Forest Supervisor or District Ranger may approve timber harvest on slopes of 72% or more on a case-by-case basis, based on the results of an on-site analysis of slope and class IV channel stability and an assessment of potential impacts of accelerated erosion on downslope and downstream fish habitat, other beneficial uses of water, and other resources."*

The DEIS indicates that on-site analyses were completed by a soil scientist within potential harvest units containing slopes greater than 72 percent; however, no documentation of those analyses is presented other than the statement on page 2-6 that *"All of the isolated steep slopes*

that remain in harvest units can be harvested and not adversely affect soil, water quality, wetlands, and downstream resources. These areas have special provisions to mitigate the potential effects of harvest, including leave tree requirements and/or log suspension requirements during yarding." In addition, although harvesting is proposed on slopes greater than 72 percent in twenty five units, only four of these units are briefly summarized on page 3-66 of the DEIS.

According to the TPIT clarification on this issue, "*To document the analysis for allowing the harvest the following Checklist should be used:*

Steepness:
Dissection:
Parent Material:
Drainage:
Potential impacts on downstream beneficial uses:

If the analysis is undertaken prior to the signing of the ROD, then the approval (if approved) should be located in the ROD and FEIS. If the information is not available prior to the signing of the NEPA document, then it should be located in the Change Analysis (documentation of changes made between the ROD and on-the-ground activities)." Although this harvesting has yet to be approved, the analyses have already been completed and, therefore, the results should have been documented in the DEIS. However, since they were not, the analyses should be summarized in the FEIS.

Unit-specific Comments:

Units 614-001b, 614-002, and 614-034a: These units occur within the Saltery Cove watershed and would be available for harvesting under two of the modified alternatives that we have suggested which utilize helicopter yarding and do not construct the 2190000 Road. The harvest prescriptions, including the proposed stream buffers and varying basal area removals that are proposed for these units under Alternative 3 should be applied under all alternatives, including those that we have suggested.

Unit 616-010: According to the DEIS (page 3-18), *"The Clover Bay Lodge owners believe that any harvest activity in this area would so negatively affect their clientele that they would have to close their business. The option of moving the lodge to a more remote and undeveloped area on south Prince of Wales Island was briefly discussed with the lodge owners. Costs associated with moving the lodge would include towing costs ($5,000 - $10,000 round trip), additional client and supply transportation costs, and some additional start-up costs. Lodge owners believe this to be economically infeasible for their business."* Consequently, this unit should be dropped from harvest consideration to avoid impacts to the continued economic viability of the Clover Bay Lodge. Doing so would also assure the protection of the lodge's drinking water source which occurs downslope of the lower unit boundary.

Unit 616-011: Under Alternatives 4 and 5, this unit would be yarded using a combination of helicopter and running skyline systems. However, as depicted on the unit card map, the area with slopes greater than 72 percent in the southern portion of the unit would create a blind lead while cable yarding to the landing shown on the map. Therefore, while we believe the entire unit should be yarded by helicopter, at the very least, this running skyline setting should be changed to a helicopter setting to avoid impacts to slope stability associated with cable yarding across a convex slope.

Unit 616-021: The same blind lead situation occurs in the area of slopes greater than 72 percent located in the southcentral portion of the unit where slackline yarding is proposed. As with Unit 616-011, this area should be changed to a helicopter setting unless full suspension can be assured while yarding over this convex slope.

Units 616-023 and 616-123: Blind leads also occur on the slopes greater than 72 percent located in the eastern portions of these units. These slopes should be deleted from the units unless full suspension can be assured during yarding operations.

Unit 616-275: According to the Soils/Watershed narrative on the unit card, *"Slopes range from 40 to 90 percent gradient with approximately 8 acres of slopes greater than 72 percent gradient. Use full suspension on slopes over 72 percent gradient east of stream 7 and partial suspension on lesser slopes to maintain soil productivity and wetland resources."* However, the Prescription narrative states that *"Soils requires full suspension on 22 acres of steep slopes >72% just east of stream #7."* As depicted on the unit card map, it appears that slopes greater than 72 percent do, in fact, comprise approximately 22 acres and not 8 acres. Given their contiguous nature, these slopes should be excluded from the unit simply by relocating the backline to just below their occurrence.

Unit 675-033: This unit contains an estimated 18 acres of slopes over 72 percent gradient. According to the Rationale for Timber Harvest on Some Slopes Over 72 Percent (DEIS, page 3-66), *"Landslide potential is high in this area; however, the resources at risk downslope do not include perennial streams."* However, according to the unit card, the Class I mainstem of Sunny Creek is located approximately 300 to 400 feet downslope of the lower unit boundary. In addition, five other Class I streams that are tributary to Sunny Creek occur between it and the unit, all of which are capable of being impacted by landslides originating within the unit. Consequently, the 18 acres of slopes greater than 72 percent should be deleted, and the unit separated into two sections, with helicopter yarding above and cable yarding below these steep slopes. In addition, no Reasonable Assurance of Windfirmness zone is prescribed for Stream #4 (which bisects the unit), despite the fact that this area has a high windthrow risk. Such a zone must be added to minimize the potential for blowdown within the buffer of this Class III tributary to Sunny Creek. Taking these measures would better ensure that the productive fisheries values of Sunny Creek are maintained into the future.

Road-specific Comments:

Road No. 2170000-1 (Sunny Cove): According to the Stream Crossings section of the road card, culverts are proposed as the crossing structures to be used on the streams at mileposts 0.75, 0.90, and 1.20. The narratives for these crossings state *"Part of drinking water watershed -- use oversize culvert and limit culvert installation to periods of low streamflow."* However, as indicated previously, since these streams are directly tributary to and capable of affecting the water quality of Drinking Water Creek, temporary log stringer bridges or similar structures must be used to minimize or avoid the substantial sediment that would be generated during culvert installation and removal. If installed correctly, and during low flow conditions, these short bridges would require little to no instream work and would, therefore, better ensure the maintenance of downstream water quality. They would also avoid the necessity of having to cap the domestic water intake pipe.

Road No. 2170000-2: This road crosses an upper branch of Drinking Water Creek at milepost 0.0. According to the Stream Crossings section of the road card, this is a Class II stream with a gradient

of 14 percent at the crossing site. Given this gradient, the 48-inch culvert that is proposed will be incapable of providing upstream fish passage, which is a requirement of not only AS 16.05.840, but also the Section 404(f)(1) silvicultural exemption of the Clean Water Act. Consequently, a temporary, short-span log stringer bridge (or similar structure) must be installed at this site to ensure that fish passage is maintained. Such a structure would also minimize or avoid the potential for impacts of sedimentation on downstream drinking water quality.

Road No. 2180000-1: Fish passage is also of concern for two of the three streams that are crossed by this road segment. Specifically, the Stream Crossings section of the road card indicates that the alignment crosses a Class II stream at milepost 0.20 where the stream gradient is 10 percent, and a Class I stream at milepost 0.75 where the stream gradient is 5 percent. 36-inch culverts are proposed at both crossing sites. However, these structures will not be capable of maintaining upstream fish passage, particularly the CMP that is proposed at milepost 0.20 where the gradient is 10 percent. Therefore, as with the crossing on Road No. 2170000-2, temporary log stringer bridges or similar structures must be used at these sites to provide for efficient fish passage and to comply with the requirements of AS 16.05.840 and the 404(f)(1) exemption.

Road No. 2180000-3: Fish passage may also be of concern at three culverted Class I stream crossings located at mileposts 0.10, 0.18, and 0.26 where the stream gradients are 5, 5, and 6 percent, respectively. However, given that these are Class I anadromous streams, ADF&G will have the opportunity to review the crossing structure plans to determine if fish passage will be maintained.

Final Road Disposition:

According to Appendix D (page D-3), and elsewhere in the DEIS, *"All roads on the Cholmondeley project area will be put in storage following timber harvest."* However, this seems to conflict with other information in the DEIS that pertains to final road disposition. For example, on page 2-14, it states that, under Alternative 4, *"Six miles of specified road would be constructed to access the harvest units in Clover Bay. The roads would remain open to all uses except passenger vehicles"* (emphasis added). This same statement is made on page 2-16 regarding Alternative 5 -- *"The road from Clover Bay to Monie Lake would remain open to all uses except passenger vehicles."* In addition, Table 2-1 (page 2-18) indicates that a total of 6 miles of roads will remain open after salvage under Alternatives 4 and 5.

Consequently, it is unclear as to what the final disposition of these roads will actually be. If the six miles of road indicated in Table 2-1 will, in fact, remain open, then what is the purpose for doing so? In addition, if they do remain open, then it is unreasonable to assume that they would be effectively maintained, especially given the high costs of mobilizing equipment to such a remote location. Given that this timber sale is essentially a one-time entry (the only entry during the rotation), all of the roads constructed for this project should be effectively closed and put to bed following project completion.

Log Transfer Facilities:

According to the DEIS (page 3-82 and Appendix F), *"All proposed LTFs would be developed as low-angle ramp systems, which have the least resource impacts and are more economical to construct and operate."* However, it appears that all of these proposed LTF sites are capable of being developed as low-profile, temporarily placed shot rock barge bulkheads, such as that being proposed for the Threemile Arm LTF on Kuiu Island (see attached plan drawing). Under this

design, water depth is not a significant limiting factor, as a minimum depth of only 8.5 feet at low tide is required. In addition, it would require the same shot rock access ramp and 3 to 5 acre sort yard as that proposed in the DEIS (page C-4) for the low-angle ramp. This type of direct land-to-barge LTF would have much less resource impacts than the proposed low-angle ramp since no logs would enter the water and rafting would not be required. In addition, since the bulkhead is temporary, the fill required for the access ramp is all that would remain upon completion of use.

According to the Threemile Timber Sale DEIS (page 3-23), the cost of developing this bulkhead is estimated to be $100,000, which is slightly more than, but comparable to, the $80,000 estimated cost of developing the proposed low-angle ramps. While we strongly recommend that a helicopter to barge alternative, such as our Modified Alternative 2, be implemented for this project, if the Forest Service continues to pursue a roaded alternative, then the low-profile barge bulkhead should be used in lieu of conventional inwater log transfer.

Comments Received from the Department of Fish and Game

Five significant issues were identified for analysis, including potential effects on drinking water quality for residents and lodge owners in Saltery Cove; for lodge owners in Clover Bay; and for residents of Sunny Cove; timber sale economics and supply; and the currently roadless character of the project area. The DEIS indicates (page 2-6) that the analysis "assumes that no future entries will be planned in the project area through the end of the rotation. The salvage of windthrown timber or cedar products would be the only reasonably foreseeable harvest beyond the harvest planned in this EIS." Other issues that were considered but that were "determined not to be significant" (page 1-14) included changing land use designations (LUDs), except for Old-growth Habitat. The DEIS states that "Land uses – in particular, near Saltery Cove, Clover Bay, and Sunny Cove – appear to be inconsistent with the current LUD of Timber Production. Alternatives and mitigation measures that are responsive to the significant issues will provide the decision maker with choices to maintain options for future LUDs."

NEPA/NFMA Issues

Alternatives Considered:
Despite the inclusion of two apparently responsive alternatives and mitigation measures, the selection of the preferred alternative appears to disregard the concerns raised by residents of the three communities in the project area. Alternatives 2 or 3 would address the significant concerns raised by residents regarding maintaining the quality of their drinking water, but are dismissed by the FS because their analysis indicates that timber harvest under these alternatives would not be economically viable. ADF&G shares the concerns of the Alaska Department of Environmental Conservation (ADEC) regarding road-building and water quality issues in these communities and urges the FS to examine additional alternatives that include more judicious selection of helicopter-yarded units to address economic issues.

Old-growth Forest Habitat Strategy:
Medium Old-Growth Habitat Reserve. Appendix K of the Tongass Land and Resource Management Plan (TLMP) contains the criteria for "further evaluating the design of reserves at the project level." The basic criteria for medium reserves are: "...a contiguous landscape of approximately 10,000

acres of which at least 5,000 acres must be productive old-growth forest. At least 2,500 acres of the productive old-growth forest component should be in the high volume class strata…" Page 3-54 of the Cholmondeley DEIS clearly documents that the medium old-growth reserve (OGR) in VCUs 6170 and 6760 is 750 acres short of productive old growth and, more importantly, 1,100 acres short of high-volume class strata old growth. In other words, the existing reserve contains only 57% of the high-volume strata forest required by TLMP. Despite this deficiency, the FS did not consult with ADF&G and the U.S. Fish and Wildlife Service (USFWS) on this issue and failed to recommend any modification of the reserve (pages 3-53 and 3-54).

By not dealing with this situation early in project planning, the FS may now be forced to make major changes to make the project compatible with TLMP, as most of the opportunities for remedying the problem now appear to be in conflict with the proposed action. For instance, adding sufficient acres of high-volume strata to make the medium reserve conform to TLMP standards may require incorporating the north shore of Clover Bay and/or the large block of old growth around Monie Lake. This may negate the need for a separate, small reserve in VCU 6160 if adequate acreage were included in the medium reserve in this VCU.

Appendix K also contains "Rules Applicable to all Reserves," which lists site-specific factors that must be considered "in placing reserves [large, medium, and small] to help meet multiple biodiversity or wildlife habitat objectives." Two of those factors are retaining "…the largest remaining blocks of contiguous old growth within a watershed" and "…rare features such as underrepresented forest plant associations or stands with some of the Forest's highest volume timber stands." To consider the latter, the FS needs to know the location of coarse-canopy, big tree stands in the project area and seek to include in OGRs a number of those stands proportional to their occurrence. Consultation with USFWS and ADF&G and provision of this information to these agencies is essential.

Small Old-Growth Habitat Reserves. We have serious concerns both with the way the small old-growth habitat reserves were reviewed and with the discussion and recommendations in the DEIS. In his August 1998 TLMP Implementation Policy Clarification, then-Forest Supervisor Brad Powell described the process to be followed in reviewing small old growth reserves. As described on page 1 of the Implementation Policy Clarification document, because "varying levels" of local information were used to design small old-growth habitat reserves in TLMP, "the Old-Growth Habitat LUD provides for the further evaluation and possible adjustment of the location of small reserves (Forest Plan, page 3-82). Furthermore the Record of Decision committed to interagency involvement in the review of small old growth reserves."

The Policy Clarification provided states that "the Forest Service will work with other Federal and State agencies on interagency reviews of the location of small old-growth habitat reserves in relation to where new projects are being planned. The Forest Service interdisciplinary team biologist, and biologists from the Alaska Department of Fish and Game (ADF&G) and the U.S. Fish and Wildlife Service (USFWS) shall be invited to jointly evaluate, as part of the interdisciplinary NEPA process, the location and composition of the existing small old-growth reserves as mapped in TLMP using criteria in Appendix K….This review should be conducted as early in the project planning process as possible…*Biologists* [emphasis added] from the three agencies should attempt to develop a consensus biological recommendation on small reserve locations. Alternative locations for placement of the small old-growth reserves will be considered during project alternative development as necessary…The line officer retains project decision authority on the location of

small reserves within the project area. Rationale for the decision of the selected small reserve design will be described in the NEPA document and Record of Decision."

Several statements in the DEIS suggest that the process followed to modify the small reserves in the project area was adequate. For example, on page 1-14: "An interagency team of biologists analyzed the small old-growth reserve boundaries and has proposed changes to these boundaries in three VCU's, as described in Chapter 3". On page 2-4: "The interdisciplinary team and the inter-agency biological team evaluated the old-growth reserves for size, spacing, habitat composition, and effectiveness. They propose the following changes:…" "They" in this instance consists of the IDT, not the inter-agency biologist team; the biologist team did not propose the changes listed. A third example appears on page 2-22: "All required interagency consultation has been accomplished…"

ADF&G strongly disagrees that the process followed to date to evaluate and modify the small old-growth reserves has been adequate. The interagency biologists were not given adequate opportunity to develop a consensus biological recommendation. In fact, we were requested to refrain from developing our recommendation until after publication of the DEIS. Nevertheless, the DEIS narrative suggests that the IDT has already rejected the interagency biologists' preliminary recommendation and unilaterally selected a modified version for the small reserve location in VCU 6160 (Monie Lake area). The alternatives also were not adequately displayed: neither the biologists' Option A nor Options B, C, or unmodified Option D are even shown on the DEIS map of reserves (Fig. 3-9). Besides not clearly showing the options for all the reserve locations, the DEIS maps of the reserve options are notably poor in other ways, showing none of the components essential to old growth habitat (e.g., old growth forest, topography). The supplementary maps we received from the FS showing the various Monie Lake alternatives were also poor, small scale, and showed no forest or other habitat attributes other than proposed timber harvest units.

In addition, the DEIS narrative explaining the IDT's rationale for rejecting the interagency alternative at Monie Lake is unsatisfactorily brief. By not including a consensus biological recommendation in one or more alternatives, the IDT has failed to present the decision-maker with a full range of alternatives, suggesting that the actions of the IDT are pre-decisional.

The first IDT meeting for the Cholmondeley project to which ADF&G was invited took place on January 29, 1998. USFWS biologists were also in attendance. We were told at that time that a draft was expected to be completed by April 1999, creating an air of urgency to accomplish modifications to the reserves. With the entire IDT present, the biologists were asked for input on modifying the small reserves. As documented by the minutes of the meeting, when suggestions were made by biologists that would bring the reserves into better compliance with TLMP requirements that reserves "be more circular than linear" and consider inclusion of the largest remaining blocks of contiguous old growth within a watershed, FS personnel objected because the proposed reserve change would impact the proposed units or LTF placement. For example, in discussing the VCU 6160 (Monie Lake) reserve, which, as mapped in TLMP, is linear and consists almost exclusively of beach fringe, an ADF&G biologist stated that he would like to "unsnake it and condense it." A FS timber planner responded that "We would not gain anything for timber by moving this HCA." (Old-growth reserves were referred to as Habitat Conservation areas, or HCAs, prior to the 1997 TLMP.) We recognize that this meeting was one of the first that addressed needed OGR adjustments for projects in the Ketchikan Area following publication of TLMP, and that clarification on the process for interagency consultation had not yet been produced by the Tongass Plan Implementation Team (TPIT).

The next IDT meeting to which ADF&G and USFWS biologists were invited took place on November 13, 1998. No draft EIS had been completed at that point, but we were again told that one would be coming out within a few months. USFWS raised the issue of the Monie Lake OGR being inadequate with respect to the guidelines in Appendix K of TLMP. ADF&G pointed out that the process had evolved, including the publication of the TPIT clarification on the process, and that the Cholmondeley project OGR modifications discussed to date did not represent a well-documented, biological consensus. We were essentially told that it was too late to include any changes in the developed alternatives, and that Alternative 3 addressed our concerns. USFWS agreed, but stated that Alternative 3 goes beyond the acreage proposed by the biologist team, and proposed, at a minimum, inclusion of verbiage in the draft EIS reflecting that fact. We were asked to provide our detailed recommendations following publication of the DEIS. ADF&G attended a portion of another IDT meeting in Ketchikan on December 2, 1998, but has no record that any additional discussion of the reserve modification took place.

In the two years since those meetings, ADF&G and USFWS biologists have met extensively with FS biologists from both districts on Prince of Wales Island to develop recommendations for modifications to small OGRs. For the Thorne Bay Ranger District, we have evaluated small reserves in all VCUs throughout the district. For the Craig Ranger District, we have worked on two small sale areas. Consultation with ADF&G biologists from other areas of Southeast Alaska indicates that they typically have evaluated OGRs as part of an inter-agency team for entire island systems. For other projects on Prince of Wales Island, the biologist teams have worked separately from the IDTs, using GIS maps and field verification of habitat to modify small reserves to ensure compliance with TLMP requirements. We have purposely *not* looked at unit pool maps, in an effort to objectively arrive at a defensible biologically preferred recommendation based on the TLMP requirements. Our consensus biological recommendations have been incorporated into alternatives developed for project NEPA documents, typically including several options for the decision-maker to consider.

ADF&G discussed the possibility of finalizing the biologists' recommendations with the Cholmondeley IDT biologist in the fall of 2000, and was told once again that the draft was too close to being published for any changes to be made. The DEIS was indeed published within a couple of months. Given that we had been requested to wait to provide our detailed recommendations until after publication of the DEIS, ADF&G was surprised and concerned to see in the DEIS the analysis and selection by the IDT of a modified version of one preliminary proposal we had discussed. To reiterate, the old-growth reserve strategy portrayed in the DEIS does *not* represent an interagency consensus opinion and does not reflect the evaluation process developed and implemented on a consistent basis elsewhere in the Tongass, as required by the TPIT clarification memo. In several respects, the reserves as proposed do not meet the requirements of Appendix K of TLMP. Modification and selection of one proposal by the IDT for inclusion in all alternatives also unnecessarily restricts the options available to the decision-maker. Although we recognize that the consensus biological recommendation for the project area reserve strategy may or may not be selected, we believe strongly that it should be presented to the decision-maker for consideration

Specific Reserve Concerns. The description of the IDT's modified option D in VCU 6160 (Monie Lake area; page 3-51) clearly demonstrates that the proposed reserve consistently disregards the requirements of the TLMP old growth reserve strategy in favor of not foreclosing on any timber volume. In direct contradiction to TLMP criteria, the IDT has taken a "roughly circular" proposed reserve and made it linear, minimizing the amount of interior forest habitat. The resulting timber harvest and road construction will fragment the largest existing block of old-growth forest in the

watershed, which is to be "compensated by the POG [Productive Old Growth] that is neither in the OGR nor proposed for harvest." This habitat is typically of low value to wildlife as well as for timber harvest. The DEIS also states that the proposed reserve "provides quality POG at the preferred Forest Plan level (800 acres)..." but fails to note that the "preferred biological objective is for each reserve to contain *at least* 800 acres of contiguous productive old-growth forest but may contain a minimum of 400 acres..." (emphasis added).

The proposed reserve does "...enhance connectivity between the beach fringe and medium OGR..." compared with the TLMP-mapped reserve. As proposed, however, the portion of the reserve around the lake consists of a narrow strip of trees, described as "an important travel corridor for wildlife species," that is 264 feet wide at one point. The DEIS acknowledges (page 3-48, citing TLMP, page 3-24) that "interior-dependent species usually require a minimum of 300 feet from an edge...therefore, to be effective, corridors must be more than 600 feet wide." The corridor as proposed falls well short of meeting the referenced TLMP recommendation, much less the TPIT recommendations for corridors (page 14, Policy Clarification document), which supercede the TLMP language. The Policy Clarification indicates that, although the literature suggests "a minimum buffer width greater than 1,320 feet if the corridor is to exhibit interior forest characteristics...a minimum corridor width of 1,000 feet of productive old-growth forest, comparable to the TLMP beach buffers that are also intended to [contribute] to connectivity, should be retained to facilitate movement and dispersal between old-growth forest reserves. When the only available corridor of productive old growth is bounded by abrupt clear-cut/old-growth forest edges, consider increasing corridor width by a potential tree height. Additional forest structure beyond the 1,000 feet should be retained as necessary based upon local site conditions to provide a reasonable assurance of windfirmness for the corridor." In a previously unharvested area such as the Cholmondeley project area, selecting an option for an old-growth reserve that would create conditions similar to heavily harvested areas is unacceptable.

In VCU 6750 (Sunny Cove), the DEIS also failed to include a map of the interagency biologists' recommendation that the small reserve boundaries be changed to conform to those approved in the Polk Inlet Timber Sale Record of Decision (ROD). The position of the reserve as proposed in the DEIS encompasses primarily non-forested areas, whereas the position where it was mapped in the Polk Inlet ROD contains much higher quality fish and wildlife habitat. ADF&G has consistently recommended this action, in both our scoping comments and in the IDT meetings we attended. At the January 29, 1998 IDT meeting, we indicated that if the acreage for this reserve as required by TLMP is less than what was mapped in the Polk Inlet ROD, then ADF&G would like to see it wrap around both sides of the Sunny Creek drainage. As proposed, the reserve is larger than required in TLMP in part because of the inclusion of low-value, high-elevation acres that connect to existing units and roads in the McKenzie Inlet area.

The DEIS discussion of the options and rationale for increased protection of habitat in the Sunny Creek drainage is inadequate. The lengthy discussion of this issue in the project's Wildlife Resource Effects Analysis Report (pages 3-2 and 3-3) should have been included in the DEIS and must be analyzed in the FEIS. That discussion notes that Sunny Creek is the last unfragmented drainage in the Polk Inlet Timber Sale area that contains high value interior forest habitat for deer and other Management Indicator Species (MIS). According to the Polk Inlet ROD, units in this area were deferred "for the life of the project", which was ongoing at the time of the initial reserve modification discussions. In addition, the comparison of this previous retention area with proposed plans as we requested in our scoping comments is not provided.

Also missing from the DEIS is the information that the existing small reserve has a mostly eastern exposure and thus includes little of the highest-value deer habitat in the drainage. The eastern side of Sunny Creek has the highest wildlife values and yet is not included within the existing reserve boundaries. In fact, nearly all of the highest value deer winter range acres in that drainage are within the boundaries of the proposed timber harvest units 675-030, 675-033, and 675-037. The latter two units were also mentioned by ADF&G as areas of concern in the January 29, 1998 IDT meeting. ADF&G suggested at that time that at least the areas below the road be dropped from harvest. Concerns about effects of timber harvest in these units on fish habitat, water supply, unstable soils, and effects of increased windthrow also apparently were raised in public comments by local residents, according to documents distributed at the January 29, 1998 IDT meeting. The DEIS also indicates (page 3-27) that Sunny Cove residents expressed concern that timber harvest in the area could change wind patterns and affect the safety of their anchorage and the stability of stream buffers.

As expressed in our scoping comments, ADF&G has substantial concerns about water quality and slope stability that would be exacerbated by timber harvest and road construction in the Sunny Creek drainage. Water quality concerns include the degradation of the water supply for local residents and for mariculture operations in Sunny Cove, as well as for pink salmon production in Sunny Creek and the fall chum and pot shrimp fisheries that occur in West Arm and around the entrance to Sunny Cove.

As we also indicated in our scoping comments, the waters of Sunny Cove are closed to salmon pursing because of its importance as a milling area for salmon stocks, as well as a staging area for out-migrating fry. In addition to chum salmon, Sunny Creek is one of the main pink salmon production streams in the area, with typical runs of 50,000 to 80,000 fish, and also supports coho and sockeye salmon. The FS was a cooperator in building a fishpass on Sunny Creek in 1986 to access additional prime spawning habitat in the watershed above. VCU 6750 is also identified as a "Primary Salmon Producer" in the 1998 Tongass Fish and Wildlife Resource Assessment, published by ADF&G.

ADF&G continues to oppose road building in this drainage because of the potential impacts to pink salmon spawning and rearing and because of the potential for the proposed activities to compromise the important fish and wildlife habitat that currently exists in this area, including creating access to the old-growth reserve. Furthermore, VCU 6750 was rated by ADF&G as being in a category of having the highest community fish and/or wildlife resource values. In our August 26, 1996 comments on the Revised Supplemental Draft Tongass Land Management Plan, the State requested the opportunity to work with the FS to develop "...appropriate management prescriptions that protect community use and fish and wildlife values."

In addition to the fish and wildlife values already described, because of its value as an estuary and as black bear habitat, the Sunny Creek drainage is designated as Crucial Habitat in the Fish and Wildlife Element of the Alaska Department of Natural Resources (ADNR) Prince of Wales Island Area Plan. Moreover, the unit card for 675-033 indicates evidence of goshawk use and the presence of "fairly good goshawk habitat" in this stand. IDT meeting notes indicate goshawk activity in units 675-029 and 675-030. These observations demonstrate the importance to wildlife of this relatively isolated stand of high-volume old growth timber.

We continue to believe that the eastern side of Sunny Creek should be included in the small reserve for this VCU. Short of that, the above-mentioned units, which are clearcuts and partially on over-

steepened slopes, should be deleted or, at a minimum, their boundaries significantly altered to retain more high-value deer winter range. The silvicultural prescriptions for these units also should be changed to single-tree selection logging with basal area retention at 65% or higher to mitigate the loss of deer habitat. We share the concerns of ADEC about the potential for landslides and windthrow in unit 675-033, and also have similar concerns for unit 675-037. We recommend helicopter yarding for any units in this watershed.

We look forward to participating in the review and analysis necessary to bring the Cholmondeley project area medium and small old-growth reserves into compliance with TLMP criteria and guidelines. A report on the consensus biological recommendation on small reserve location is in preparation, to be submitted to the IDT after publication of the DEIS, as requested. Additional analysis on the medium reserve is necessary and can be included in that report.

Hairy Woodpeckers and Brown Creepers:
We strongly disagree with the assertions on page 3-58 that hairy woodpeckers and brown creepers would benefit or suffer no ill effects from this project because the *number* of forest patches would increase following logging. Although the number of patches may increase, the number of acres of habitat, the number of highest volume old-growth acres, and the number of snags available for nesting and foraging will all decrease. Acres of habitat, high-volume, uneven-aged old growth, and availability of decayed wood for nesting and foraging are the important factors in survival of hairy woodpeckers and brown creepers, not the number of forest patches of a certain size. As a result, hairy woodpeckers and brown creepers will suffer detrimental effects from the sale. The DEIS analysis is seriously flawed and should be redone.

Other Wildlife and Public Concerns:
ADF&G was informed in a telephone conversation with a Saltery Cove resident that a young goshawk had become trapped in a neighbor's shed, and that other goshawks have been observed in the area. She also indicated that swans have been observed on Swan or Saltery Lake, and expressed concern that a timing restriction on harvest activity would be necessary. This resident also expressed a preference for no road access into the area behind Saltery Cove, and stated that helicopter yarding was preferable from her standpoint. She also indicated that she and other residents are concerned about the potential for sedimentation of the water supply for Saltery Cove as a result of timber harvest activities.

Watershed, Fish Habitat, and Mass Wasting Concerns:
A landscape-level analysis conducted by the FS for the Cholmondeley planning area identified Sunny Creek, Monie Creek, Saltery Creek, and Drinking Water Creek as having the highest watershed concerns.

The Sunny Creek watershed contains pink, chum, coho, and sockeye salmon, steelhead trout, and Dolly Varden char. Frequent use by bear hunters is reported. The most sensitive areas are identified as the northern subwatershed and along the south side of the lower watershed. Proposed units 675-033 and 675–037 are located in the northern sub-basin, which has the highest sediment risk and transport potential in the basin. The upper portions of both units contain high mass movement index soils. The area contains a "significant amount of blowdown," creating concern that Class III buffers could blow down. The Watershed Analysis recommends that "Timber harvest should avoid this area if possible or be conducted with great care." The report recommends that if the north side of the northern subwatershed is entered for timber harvest, helicopter yarding is recommended. ADF&G

concurs with the recommendation to avoid timber harvest in this area by deleting these units. Unit 675-030 is also of concern because it consists entirely of high mass movement index soils.

The Monie Creek watershed contains pink, chum, coho, and sockeye salmon, cutthroat trout, Dolly Varden char, and 4-spine sticklebacks, with pink, chum, and sockeye limited by difficult migration conditions. Recreation use by deer hunters and probable anglers is reported. The southern sub-basin, including the lake and stream systems flowing into Monie Lake from the south, received the highest overall sediment risk and transport ratings. Although most proposed harvest areas were classified as having high mass movement index soils, these units reportedly did not appear to be as sensitive as typical high mass movement index areas. The western sub-basin appeared to have the greatest potential to affect anadromous fish habitat, particularly coho and sockeye spawning habitat immediately upstream from Monie Lake. Proposed units 616-021 and 616-275 were highlighted as being of concern for potential impacts to fish habitat because of their high mass movement index soils and the high probability for landslides in unit 616–275. In addition, a crossing of the main stem stream upstream of Monie Lake would be necessary, and is described as "...not a good place to put the road but may be the option to access an LTF at Clover Bay." ADF&G concurs with the recommendation in the Watershed Analysis "to defer harvesting in the western sub-basin and to end the road on the south side of Monie Lake, avoiding a crossing in the sensitive area west of Monie Lake."

The Saltery Creek watershed contains pink, chum, and coho salmon, and Dolly Varden char. The Watershed Analysis speculates that sockeye salmon and steelhead trout also may occur in the watershed. Overall fisheries values in the watershed are described as high, and evidence of "...quite a bit of recreational activity" was observed. The most sensitive area is identified as the area upstream of the south end of Saltery Lake (also known as Swan Lake), which contains a portion of proposed unit 614-034. The next most sensitive area is identified as the western sub-basin, which contains the remainder of unit 614-034 and unit 614-002, both of which consist mostly of high mass movement index soils. ADF&G concurs with the recommendation to "defer harvest on areas draining into Saltery Creek above the lake or into the productive fen on the south end of the lake." Any road-building in this area should avoid, not minimize, impacts to the drinking water sources for Saltery Cove residents. Helicopter yarding would be preferable for any harvest in this watershed.

The Drinking Water Creek watershed contains only resident fish habitat. The Watershed Assessment identifies the most sensitive areas regarding fish habitat as well as drinking water quality as being located within one-third mile of saltwater. ADF&G concurs with the recommendation to defer harvest in this area and helicopter yard remaining areas in the watershed.

Roads and Access Management:
ADF&G shares the concerns expressed by ADEC regarding fish passage issues and sedimentation from proposed roads in the project area. Specifically, we agree with the recommendation for log stringer bridges at crossings of drinking water systems, if roads are built. The current roadless status of the project area, the national emphasis on minimizing road building on National Forest lands, concerns about the high potential for sedimentation relating to human drinking water quality as well as maintenance of fish habitat, concerns about the adequacy of old-growth reserves, which should remain roadless, and the stated assumption of no future entries into the project area within the rotation because of timber economics, raise the question of whether construction of a road system in this area is prudent. ADF&G is supportive of proposals by ADEC that would create modified alternatives to address most of these concerns, including timber sale economics. ADEC Modified Alternative 2 appears to have merit.

ADF&G also shares the concern expressed by ADEC regarding the prohibitive costs of adequate maintenance on the 6-mile-long portion of road proposed to be left open north of Clover Bay. We were told in the IDT meeting on November 13, 1998 that the FS is obligated to provide access for subsistence purposes, and that leaving this road open would contribute to addressing that concern. Use of this area in the past by subsistence communities has not been demonstrated, however. Most use of the Clover Bay area has likely been by Ketchikan hunters, who do not qualify as subsistence users. Subsistence use has been documented in the West Arm, Sunny Cove, and Saltery Cove areas. We concur with ADEC that for this single-entry sale, any roads constructed should be "effectively" closed to motor vehicles, including ATVs, as defined in the 1997 TLMP Alexander Archipelago Wolf and Marten Standards and Guidelines. In addition, all stream crossing structures should be removed.

The Travel Management Narrative on the road card for Road No. 2170000-1 indicates that the system will be "closed to motorized vehicles after initial entry," (page C-3) yet a statement on page C-4 indicates "Although this road is intended to stay open, the anticipated future use is limited to silvicultural activities and incidental use by ATVs." The FS should correct these inconsistencies.

Log Transfer Facilities (LTFs):
ADF&G requested in our scoping comments that the FS show proposed log storage areas and sortyards as well as the proposed LTF sites themselves. Similarly, we requested identification of preliminary proposed helicopter landings and in-water bag boom locations. This information is not included in the DEIS. ADF&G Division of Commercial Fisheries has expressed concerns about the potential for log ships, barges, and log storage areas to conflict with commercial purse seiners during the fall chum fishery (late September through mid-October), particularly in the Sunny Cove area. Two purse seine hook-offs are located to the east of Sunny Point, very close to the proposed LTF. In addition, we are concerned about the potential for negative impacts on water quality associated with the mariculture operation and interference with the anchorage in Sunny Cove should a log storage area be proposed in the cove. We recognize that these sites will undergo separate ACMP review, but input early in the planning period may help avoid or minimize conflicts.

It does not appear that the DEIS has fully analyzed alternatives to the traditional low-angle drive-down ramp, particularly on a site-specific basis. For example, a pile-supported barge transfer facility is dismissed because it has not been demonstrated to be feasible. In addition, the estimated costs to build the proposed low-angle ramp are reported to be identical at the three sites, although it seems likely that site-specific factors may differentially affect the costs at each site. The FS should remain open to new technologies that have the potential to reduce long-term impacts to upland and marine habitats. We support the recommendations of USFWS and ADEC to evaluate alternative transfer methods, including pile-supported barge transfer facilities and low-profile temporary barge bulkheads.

Economics:
In our scoping comments, ADF&G requested analyses of the economic value of wildlife to both hunting and tourism. We indicated that these should include dollar value estimates for tourism, fishing, subsistence, and other activities on the forest, and referenced Shea (1990), "Impacts of development on the non-hunting wildlife-oriented businesses of southeast Alaska." These analyses were not included in the DEIS.

Ketchikan hunters and trappers:

In our scoping comments, ADF&G requested an analysis of the effects of the project specifically on Ketchikan hunters, trappers, and wildlife users as well as on those from subsistence communities. Effects analyses have found that nearly all timber sales on Prince of Wales Island have a significant possibility of significantly decreasing subsistence opportunities for deer and other species. As habitat carrying capacity declines and the number of deer available for harvest decreases, it is possible that non-Federal-subsistence hunters may be excluded from all or portions of the project area to ensure that deer will be available for subsistence users. We indicated that the DEIS needed to clearly point this out and to predict if and when that is likely to occur in the project area. This analysis was not included in the DEIS. Use by Ketchikan hunters in the project area is noted, however.

PRELIMINARY ACMP CONSISTENCY ISSUES

Information Needs:
Maps provided by the Forest Service to meet criteria of Attachment 1 of the ACMP MOU did not show contour lines at a minimum of 500-foot intervals as required.

T ITLE 16 ISSUES:
AS DETAILED IN SECTION 402 OF THE ACMP MOU, IN ADDITION TO THE PROCEDURAL AND INFORMATION EXCHANGE REQUIREMENTS SPECIFIED UNDER THE MOU, THE *FS-ADF&G SUPPLEMENTAL MOU NO. 1 REGARDING FISH HABITAT AND PASSAGE* (T16 MOU) APPLIES TO ALL INSTREAM ACTIVITIES ASSOCIATED WITH PROJECTS REVIEWED UNDER THE MOU. THE MOU INDICATES THAT AFTER COMPLETION OF AN ACMP CONSISTENCY REVIEW FOR A PROJECT INVOLVING INSTREAM ACTIVITIES, THE FS WILL FULFILL THE PROCEDURAL REQUIREMENTS OF THE T16 MOU PRIOR TO CONDUCTING ANY INSTREAM ACTIVITIES. THROUGH THE NOTICE OF INSTREAM ACTIVITY (NOIA) PROCESS, ADF&G ANTICIPATES EARLY NOTIFICATION AND THE OPPORTUNITY FOR EARLY REVIEW OF PROPOSED INSTREAM ACTIVITIES DURING A PROJECT'S PRELIMINARY DESIGN PHASES.

Given the existence of this MOU, ADF&G is concerned about a statement in the DEIS (page 2-7) that "The Craig Ranger District has been successful implementing the following BMP's on Class II streams and expanding the construction window on projects with timing restrictions:…Installing culverts or bridges during low flow periods or when streams are frozen minimizes impacts to the streams. The district fisheries biologist is consulted on a case-by-case basis to determine appropriate options for each site." The MOU and associated consultation with ADF&G is not mentioned. In addition, the MOU applies to all fish-bearing waters, not just anadromous waters, and we are uncomfortable with the promotion of instream work outside of standard timing windows. Class II streams are, by definition, directly tributary to anadromous streams and have the potential to transport sediment into downstream anadromous waters. Fish passage is required for structures in all fish-bearing waters, as well.

Roads and Access Management:
Construction of additional roads in the project area is also a concern under the ACMP. Road networks can lead to negative effects on wildlife populations as a result of increased access and increased secondary effects such as non-point source sediment loads in surface waters. We are concerned about the proposal to construct up to 26 miles of road in a currently unroaded area for a one-time entry for timber harvest. We are also concerned about the ability of the FS to maintain a remote system such as that proposed to the standards required under the Alaska Forest Resources and Practices Act and Regulations (e.g., 11 AAC 95.315).

ADF&G has serious concerns about the configuration of the Old-growth Habitat reserves in the project area. Interagency consultation for review of the small old-growth reserves has been unsatisfactory, resulting in unilateral recommendations by the IDT regarding the location of the boundaries of the small reserves in the project area. Of equal concern to us, however, is that the IDT has made no effort to make the greatly substandard medium Old-Growth Habitat reserve in VCUs 6170 and 6760 meet the minimum TLMP criteria for medium reserves. The combination of a medium reserve that is far below minimum standards and small reserves that are either sited in lower value wildlife habitats or gerrymandered around proposed timber harvest units raises serious questions about whether this sale as proposed conforms to TLMP criteria, standards, and guidelines and whether it is consistent with the state Forest Practices Act and ACMP standards (e.g., AS 41.17.060(c)(7)) to make allowances for important wildlife habitat.

In addition, we share the concerns of ADEC that the sale as proposed likely does not meet the requirements under AS 41.17.060(b)(5) and (e)(5) to ensure that "significant adverse effects of soil erosion and mass wasting on water quality and fish habitat shall be prevented or minimized" and that "there may not be significant impairment of the productivity of the land and water with respect to renewable resources." We may also have concerns relating to AS 41.17.060(e)(3) ["to the extent its capacity permits, forest land shall be administered so as to provide for the continuation of businesses, activities, and lifestyles that are dependent upon or derived from forest resources"] and (e)(6) ["allowance shall be made for scenic quality in or adjacent to areas of substantial importance to the tourism and recreation industry"], particularly with regard to proposed units that may negatively affect the business prospects of the fishing lodges in Saltery Cove and Clover Bay, and residents of Sunny Cove.

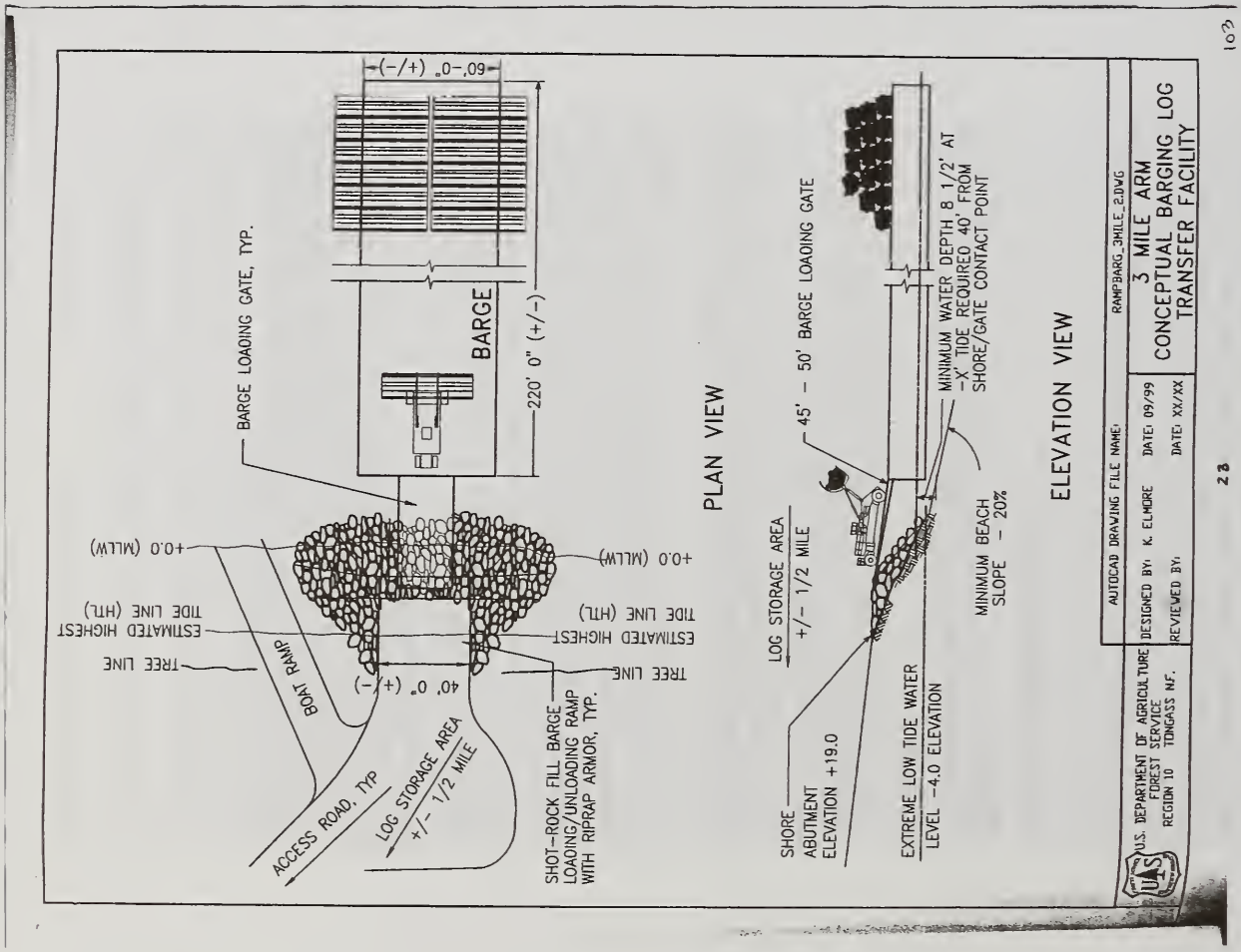
Comments Received from the Department of Community and Economic Development

The DEIS does not provide adequate consideration of the social and economic impacts that the Timber Sale will have on local businesses that have spent the past two decades working to diversify the economy of SE Alaska by providing jobs within the recreation industry.

Page 3-85 of the EIS states that measurable social or economic effects are not anticipated by this project beyond those disclosed in Chapter 3 of the DEIS, However according to the *Social and Economic Report,* impacts to the existing lodge in Clover Bay and lodge in Saltery Cove will result in 0-80% decline in recreation industry jobs. Specific measures to mitigate the impact to jobs in the recreation industry are not provided.

It is also stated on page 3-85 of the DEIS that a broad based assessment of the social and economic effects of this timber sale are addressed in Chapter 3 and Appendix H of the Forest Plan FEIS. The Cholmondeley DEIS or the Tongass Forest Plan EIS simply do not address impacts that the proposed harvest and development in this region will have on the local economy and lifestyle.

Because District staff has indicated that no further timber harvesting will be allowed in this area, the EIS for the sale should consider the long term and irreversible impacts of a one time sale on existing and potential businesses that provide needed economic diversification.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BARGE
60' 0" (+/-)
220' 0" (+/-)
+0.0 (MLLW)
ESTIMATED HIGHEST TIDE LINE (HTL)
TREE LINE
BOAT RAMP
40' 0" (+/-)
ACCESS ROAD, TYP
LOG STORAGE AREA
+/- 1/2 MILE
SHOT-ROCK FILL BARGE LOADING/UNLOADING RAMP WITH RIPRAP ARMOR, TYP.
PLAN VIEW
45' - 50' BARGE LOADING GATE
MINIMUM WATER DEPTH 8 1/2' AT -X' TIDE REQUIRED 40' FROM SHORE/GATE CONTACT POINT
MINIMUM BEACH SLOPE - 20%
SHORE ABUTMENT ELEVATION +19.0
EXTREME LOW TIDE WATER LEVEL -4.0 ELEVATION
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U.S. DEPARTMENT OF AGRICULTURE FOREST SERVICE REGION 10 TONGASS N.F.
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3 MILE ARM
CONCEPTUAL BARGING LOG TRANSFER FACILITY
23
103

KETCHIKAN GATEWAY BOROUGH
Office of the Borough Manager • 344 Front Street • Ketchikan, Alaska 99901

Georgianna Zimmerle
Borough Manager
(907) 228-6625
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boromgr@ktn.net

Doc. No. 0524
File Desig. D.4.b.

February 13, 2001

Mr. Dale Kanen, District Ranger
Craig Ranger District
Tongass National Forest
P.O. Box 500
Craig, AK 99921

RECEIVED
FEB 15 2001
CRAIG RANGER DISTRICT

Cholmondeley EIS

The Ketchikan Gateway Borough ("KGB") has reviewed the Draft Environmental Impact Statement (DEIS) for the Cholmondeley Timber Sales. The KGB, a second class borough and municipality organized under the laws of the State of Alaska, is located in the Tongass National Forest and is a timber-dependent community and a recipient of timber receipt revenues pursuant to 16 U.S.C. § 500. KGB residents engage in varied activities within the Tongass National Forest, including recreation activities such as hiking, camping, fishing, hunting and personal use timber extraction. Other KGB residents participate in commercial timber harvests as part of the activities that comprise the area economy.

The KGB supports the proposal to harvest timber from the Cholmondeley Timber Sales project area. The KGB believes that the Forest Service should make maximum utilization of timber sale opportunities in areas of the Tongass that are designated Timber Production and Modified Landscape by the recently revised Tongass Land Management Plan so that manufacturing facilities in Ketchikan and elsewhere in Southeast Alaska have an opportunity to purchase sufficient timber to meet their manufacturing needs.

Purpose and Need:

The KGB supports the purpose and need evaluation for the Cholmondeley Timber Sales project as stated on page 1-5 of the DEIS. The KGB particularly agrees with the following points made in the DEIS: the agency should 1) manage the timber resource for production of saw timber and other wood products from suitable and available timber lands on an even-flow, long-term sustained yield basis and in an economically efficient manner; 2) seek to provide a timber supply sufficient to meet the annual market demand for Tongass National Forest timber, and the market demand for the planning cycle; 3) provide a diversity of opportunities for resource uses that contribute to the local and regional economies of Southeast Alaska; and 4) support a wide range of natural resource employment opportunities within Southeast Alaska's communities. The KGB urges the Forest Service to offer as much economically feasible timber as possible from each of the three groups of harvest units identified in the Cholmondeley DEIS.

The KGB also agrees generally with the stated "Desired Future Condition" set forth on p. 1-9 of the Cholmondeley DEIS. It is appropriate for the Forest Service to consider visual concerns and watershed effects in the project area. However, the KGB believes that sufficient protection for these issues are established by the Forest Plan standards and guides, and the Borough objects to any exceedance of those standards that would unnecessarily reduce the amount of economicially available timber from the project area. The KGB does support the goal of using the proposed timber sale project to enhance the "fishing, hunting and other recreation opportunities in the Monie Lake area."

Meeting Market Demand:

The Forest Service should implement the land use designations (LUDs) established in TLMP. The KGB notes that the total number of acres in LUDs allowing timber harvest is now so small that the Forest Service must use the Cholmondeley area to seek to meet market demand under TTRA §101.

In April, 2000, the KGB received the final report from the McDowell Group which it produced under contract to the Borough, setting forth its assessment of market demand for Tongass timber. The study demonstrates that every proposed sale (including salvage sales) is now critical for maintaining the economies of scale necessary for Southeast Alaska processors to compete in the world market for wood products. The report states:

> During the past 5 years the timber supply and demand situation in Southeast Alaska has undergone considerable change. On the supply side, the allowable sale quantity (ASQ) for the Tongass National Forest has declined significantly amid great uncertainty. Coupled with this, the economic meltdown in Asia has reduced demand for products from the Tongass National Forest. These changes, along with the closure of the two pulp mills, have adversely affected the short-term prospects for processing facilities dependent on timber from the Tongass National Forest.
>
> *However, North American markets are strong with an outlook for continued growth.* Other world markets, such as Europe and China are potential sources of demand. There are signs that Japanese demand is beginning to recover, and other Pacific Rim markets like Korea, Taiwan and Oceania have growing timber import needs.
>
> While it is true that the Asian economic crisis has significantly affected market demand for timber from the Pacific Northwest, Canada and Alaska, the challenge for Alaska producers, with their relatively small output, *is not so much lack of demand as changing demand.* Alaska is a niche player, and a decline of established markets in Asia has brought on a need to fill new niches.
>
> Producers have responded in part by establishing relationships with remanufacturing operations in the Pacific Northwest and this appears to be the most promising market as long as housing demand in the U.S. remains strong. Beyond the short term, demand is expected to renew in Japan, Korea and other Pacific Rim nations. While price sensitivity and competition are expected to persist, demand for old-growth wood should recover, though meeting that demand may require

matching Scandinavia's ability to provide precision-cut, kiln-dried lumber of uniform quality.

However, world markets are extremely competitive, and becoming more so. Niche strategies are being pursued at the national and multi-national level. For example, Norway, Finland and Sweden have developed a cooperative marketing effort to build Japanese demand for precision-cut softwoods that compete directly with Alaska products in traditional Japanese construction and other applications. Similarly, supplying components to secondary manufacturers in the Pacific Northwest is a promising strategy that nevertheless faces numerous competitors in British Columbia, Washington and Oregon. As Southeast Alaska moves from an industry primarily concerned with minimal processing to one that must meet the potentially more rigorous cutting and marketing requirements of niche markets, new skills – both production and marketing – are needed. *Access to a reliable supply of economically viable timber is also a critical issue for producers, particularly during this period of transition.*[1]

The forest products manufacturing focus in Southeast Alaska is changing, and manufacturing facilities in the Ketchikan area are among those leading the way to a new era. The new focus features the manufacture of specialty products, including window and door frame components and veneer for the production of engineered wood products like laminated veneer lumber (LVL). Production of dried and dressed lumber and an increase in the output of cedar lumber are also under consideration. The KGB supports efforts by local manufacturers to increase local industrial employment by targeting growth markets such as those, and urges the Forest Service to consider the importance of supplying these companies with an economical supply of wood through projects such as the Cholmondeley project.

As McDowell points out:

> . . . markets, technology and timber supply are inextricably mixed. There is no question that markets for Tongass-type products exist. But efficient – i.e., competitive – processing of the Southeast Alaska timber supply requires modern technologies and effective marketing relationships. Without a reliable timber supply, these technologies cannot be financed or, once installed, effectively used. Neither can business relationships be sustained. Further, timber sales must be composed and priced to be economically viable in today's markets. Analysis of global markets indicates that without reliable timber and ongoing investment, Tongass timber products will be significantly handicapped in the marketplace.[2]

The KGB believes that the findings of McDowell illustrate the importance of projects such as the one proposed for the Cholmondeley area. It therefore urges the Forest Service to proceed with

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[1] McDowell Group, "The Global Market for Timber from the Tongass National Forest," Juneau, Alaska: April, 2000, pp. 9 & 10 (Emphasis added).

[2] McDowell, p. 11.

the Cholmondeley project without delay, and to ensure that the selected alternative provides the highest volume possible consistent with positive economics.

The KGB supports Alternative 5 as the preferred alternative:

It appears that Alternative 5 provides the best opportunity for the Craig Ranger District to use the Cholmondeley project area to contribute to the agency goal of meeting market demand for timber under the current Tongass Land Management Plan. The KGB supports Alternative 5's provision allowing timber to be extracted from all three groups of harvest units proposed for the Cholmondeley project. The Borough is aware that the Alaska Forest Association is suggesting that Alternative 5 be modified to drop certain units that are not economically feasible to harvest at this time. The KGB supports the industry's effort to improve the economics of the proposed timber sales, and urges the Craig Ranger District to accept the AFA's suggestions to drop the identified units and reduce the needed road construction in the project area.

Old Growth Reserves:

Finally, the KGB objects to any expansion of small Old Growth Reserves in the project area beyond the minimum acreage and minimum Productive Old Growth (POG) requirements of the Forest Plan. Table 3-16 of the DEIS indicates the agency's intention to reduce the POG available for harvest by expanding small OGRs beyond the minimum requirements of the TLMP. This, together with the proposal to exchange beach fringe volume for non-beach fringe volume, especially in VCU 616, is inappropriate and unnecessary. The KGB requests that the FEIS and ROD confine any changes to the small OGRs to those that are necessary to conform the OGRs to minimum Plan requirements.

The KGB appreciates the opportunity to comment on the Cholmondeley Timber Sales DEIS. Should you have any questions concerning any of these comments, please contact me at (907) 228-6625.

G. Zimmerle

Georgianna Zimmerle
Borough Manager

cc: Mayor Shay and Assembly Members
Susan Dickinson, Planning Director

02/05/01 MON 13:15 FAX 907 542 3006 OrganizedVillageofKasaan 001

Doc. No. 0492
File Desig. D.4.b.

ORGANIZED VILLAGE OF KASAAN IRA
EPA DEPARTMENT
P.O. BOX 26 – KASAAN
KETCHIKAN, ALASKA 99950-0340
TELEPHONE NO. (907) 542-3008
FAX NO. (907) 542-3006

To: Dale Kanen	From: Richard Peterson
Fax: 826-2972	Date: 2/5/01
Phone:	Pages (INCLUDING COVER PAGE): 2
Re: Cholmondeley DEIS	CC:

☒ Urgent ☐ For Review ☐ Please Comment ☒ Please Reply ☐ Please Recycle

•Comments:

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02/05/01 MON 13:15 FAX 907 542 3006 OrganizedVillageofKasaan 002

Organized Village of Kasaan
P.O. Box 26-KXA
Ketchikan, AK 99950-0340

Dale Kanen
Craig District Ranger, USFS
P.O. Box 500
Craig, AK 99921

Dear Dale,

This letter is in regards to the DEIS for the Cholmondeley Timber Sale. As you know the Organized Village of Kasaan have some concerns on this very important matter. We are of course first and foremost concerned about the safety and quality of life of our Tribal members. As you also know the Organized Village of Kasaan has two Tribal members that currently reside in Saltery Cove. Some issues have been brought forward to us only in the recent past that we would like to see resolved.

Some of these issues include but are not limited to the scientific study that took place in the watershed, culturally significant sites, and subsistence.

- The Tribe feels that before any kind of logging transpires the scientific data needs to be proven without question.
- The issue of any significant cultural sites needs to be addressed immediately. So far there are claims of cedar harvest sites and also artifacts that were found by Ron Leighton which the Tribe has in possession.
- Also of note is the fact that according to the Goldschmidt and Haas report, there was a village located in the area, I would like to know of what importance the Forest Service holds for such culturally and historically significant places.

I would also like to discuss the Tribes rights and the need for more Tribal input in not only this case but also any similar cases that may arise. I appreciate the fact that both the Forest Service and the Tribe are still trying to figure out what exactly the consultation process is and what it should be and also that you may be short staffed, but I feel this issue with the Cholmondeley DEIS is of great importance and we should work together to achieve an environmentally friendly alternative. I would also like a letter putting it in writing that the date for the comment period of February 12th has been waved for the Tribe and that our input will not and cannot be ignored. Up until now the Tribe has not been afforded any kind of consultation that we feel has been at all adequate to meet our or are tribal members needs.

I thank you for taking all of this into consideration and I look forward to working with you to meet these and any future needs that may arise.

Best regards,

Richard J. Peterson, President

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Subsistence Hearings and Testimony

The Forest Service held subsistence hearings for the Cholmondeley EIS in Kasaan, Alaska on January 15, 2001. 2 individuals testified at the hearing and 7 individuals submitted written testimony in four letters. Following is a table listing individuals that testified and the page(s) of this appendix where their testimony may be found.

First Name	Last Name	Page
Ronald	Leighton	B110-B114
Richard	Peterson	B115
Joan	Leighton	B116-B117 (written)
Mel and Jeri	Fairbanks	B117-B118 (written)
Dan and Liz	Williams	B118-B119
Dennis and Mary	Owens	B119 (written)

SUBSISTENCE HEARING

CRAIG RANGER DISTRICT
January 15, 2001

M. JUNE ZENGE
Zenge's Secretarial Services
525 Monroe Street
Ketchikan, Alaska 99901
907-225-5252

P R O C E E D I N G S

MR. LAWTON: Today is January 15th, 2001. I'll start with some introductions. This is Mary Pierce, and she's the writer editor of the document, and Dale Kanen is the District Ranger. He's the recommending official on this particular document, and I'm Gary Lawton, the IDT leader on the project. So, I just want to say good morning, and this is a public hearing as provided by Section 810 of ANILCA to receive subsistence testimony on the alternatives proposed in the Cholmondeley Draft Environmental Impact Statement. And I'm Gary Lawton, and I've been designated by the Forest Service as the hearing officer for this proceeding. I want to thank you all for coming.

The intent of this subsistence hearing is to make an official record of your testimony. We appreciate your interest and effort to be here, and want to assure you that we'll do our part to listen and record your comments. For the record, today is Monday, January 15th, and it's about 11:25 a.m. This hearing will be held in Kasaan, Alaska -- is being held in Kasaan, Alaska at the city hall. Public notice for this hearing has been made by publication in the Ketchikan Daily New, the Island News, and by notices posted on the community bulletin board.

There are some procedures I'd like to mention. This hearing is scheduled to run -- well, I originally said 1:00

p.m., but there's not a lot of people here so maybe we'll close it maybe at 12:30, but we'll be around for a while to accept comments. We want to give everybody an opportunity testify. So, if we run beyond the time, we'll still continue to listen to comments. If testimony is completed earlier, we'll keep the record open till about 12:30 to allow opportunity for additional comments. To accommodate local needs, please let people who have traveled here by boat or airplane testify first, so they can get back home in the daylight. I guess we don't have to worry about that. There's not a big crowd. If you have not already done so, pleases sign in at the door to indicate if you wish to present testimony, and I believe everybody will give testimony today, right?

(Indiscernible - mechanical malfunction) come up for testimony, pleases state your name and spell it for the record. This, along with your address and phone number on the sign up sheet will allow us to contact you if we need to clarify something in your testimony as we develop the final EIS for this project. (Indiscernible - mechanical malfunction) notification, I am now opening the hearing, and we are ready for the first testimony. So, I don't know if Dale has any comments you want to add on? I'll turn the microphone over to you, and you can -- and also, if you have written comments, you can just submit them right up here and we'll take them in. Maybe mention who they're from and we'll go from there.

UNIDENTIFIED VOICE: We don't have to read them in order to (indiscernible - mechanical malfunction).

MR. LAWTON: (Indiscernible - mechanical malfunction) submit them, and we'll accept them as they are.

MR. LEIGHTON: Okay. For the record, my name is Ron Leighton. I'm a residence full-time in Saltery Cove. My wife and I live there, along with other neighbors, but we are on fixed income, retired and (indiscernible - mechanical malfunction) have some written comments. The residents -- I came in yesterday by boat and beat the weather, but the other residents of the cove there, I just found out, on a telephone conversation, that they're unable to make it due to the heavy seas, so I got written testimony from my wife, Joan Leighton, that I will be submitting, neighbors Mel and Jerry Fairbanks, Dennis and Mary Owens, and Dan and Liz Williams, all of who wanted to attend, for weather reasons they couldn't.

Okay. We had -- I'd like to start out this morning on stating that water is our number 1 subsistence. It gives us nourishment, that we process simply all of our -- all of our subsistence gathered foods with water, and that that water quality is very important to process our -- and survive. Like I say it is -- I consider water our number 1 subsistence gathering product. I not only gather it for subsistence, for nourishment, for washing our foods and stuff like that, but we also use it for generating our power at our home site.

(Indiscernible - mechanical malfunction) have the water rights on the stream, and we have our permits from the Forest Service to have the dam there. We also process and gather venison. Venison from the area of 614001A, B, 002, and I think you're 614 (indiscernible - mechanical malfunction) A and B areas to be roaded and logged. This here is also a winter gathering habitat for the deer. A (indiscernible - mechanical malfunction) in the high timbers within these units that you designate for logging. We have bear that hibernate in the area, and we (indiscernible - mechanical malfunction) large amount of wolves in the area. Probably an over amount of wolves in the area. (Indiscernible - mechanical malfunction) in question probably yields a high amount of deer population at this point, and should any road building or logging occur, could af -- could substantially decrease the amount of (indiscernible - mechanical malfunction) the area for roaded hunting and/or (indiscernible - mechanical malfunction) the fact that you're going to have a heavy amount of other people, whether be employed there or not, will be in the area to harvest deer during seasons.

(Indiscernible - mechanical malfunction) Kasaan here, the (indiscernible - mechanical malfunction) be accessible to hunters (indiscernible - mechanical malfunction) altitudes and get the deer out more readily, or more easily, and not to say anything about our seafood. We do a lot of crabbing and

shrimping in the area of where you're going to be putting that LTF. During the McKenzie sale I lost three shrimp pots for whatever reasons. I had them replaced by a outfit that was connected to the logging, but they were removed out of there by a tugging operation. I had a prop on my boat damaged by freshly thrown limbs into the McKenzie Skowl Arm area, and this was just with a helicopter logging operation that was ongoing in the McKenzie (indiscernible - mechanical malfunction) last year, or the year before last (indiscernible - mechanical malfunction) local loggers lifting my pots and taking the shrimp and crab out of them, removing them out of them. So that's -- that's a high impact. The area that we're talking about I can't readily see from the house. It's out around the point. This area is good for us. This area is good for us because we don't have the -- have to -- once we leave the cove we don't have to get into the real surge or heavy seas, and we can go over and dig clams, tend to our shrimp and crab pots in foul weather. Where, if we was to head out of the bay, out of Scowl Arm, you get into the heavy surges. You can't dig clams in a surge. (Indiscernible - mechanical malfunction) around your designated LTF in the McKenzie side, is over our clam beds. It will be placed over our clam beds. And I'm saying this now because I haven't had a chance to say it. We've had -- we've had our first meeting there in town with Norm Madsen, and that there was primarily trying to point out our

domestic watersheds and stuff like that. After that we had another meeting in Saltery Cove, and that was a meeting that we wanted just on our watershed, again pointing out our domestic streams and stuff like that.

(Indiscernible - mechanical malfunction) speak on wind shear possibilities, bringing higher speed winds into the (indiscernible - mechanical malfunction) was also in Saltery Cove, and that there was when the Forest Service presented us with the alternatives two through five (indiscernible - mechanical malfunction) which alternative we would like. So, were -- we weren't afforded any real opportunity until this time to even talk on subsistence. I know in the draft EIS, the -- it did hit on subsistence, but it was like we didn't really care, but that's not true. We do care. It's our chosen lifestyle (indiscernible - mechanical malfunction) there's something of everything from beach asparagus, goose tongue, to berries, to all your shellfish products, your birds (indiscernible - mechanical malfunction) organized village of Kasaan, and that, the organized village (indiscernible - mechanical malfunction) takes in all of this area. It also takes in all the way down to Chasina Point (indiscernible - mechanical malfunction) other bays off of that, and (indiscernible - mechanical malfunction) Kasaan, under their constitution and bylaws state that they have the power and the prese -- the right for preservation of life and quality of

their members, of which we are, and that (indiscernible - mechanical malfunction) you have to at least (indiscernible - mechanical malfunction) under the (indiscernible - mechanical malfunction) system where they have their EPA representatives and everything in place, that the government itself shows that they're giving them more and more say as to what goes on, and they're doing this so that they have some power and authority to sit down there fulfill their constitution by monitoring and also enforcing EPA regulations, and I feel that (indiscernible - mechanical malfunction) heavily as to maybe their ideas as what could be done. I think they sent a -- they sent a document to the Forest Service. I don't know if you guys got it or not, but I don't think you have responded back, but this here was to protect the watershed in Saltery Cove. Their alternative to this would be simply to move the old growth reserve to the watershed area in which units 614 or -- 614001A, units 001B, and 002 fall in, and if they -- if they could just move that old growth boundary, that this here would protect our watershed and meet the Forest Service needs for TLMP, or for your forest plan -- plans act.

Right now, looking at that draft EIS, and being in law enforcement, I'm retired law enforcement, in the State of Alaska the state has the power and authority to cite people for contaminating streams. I mean you can't contaminate in the least, especially a stream that is considered to be a class B

domestic watershed in which the streams that we're talking about, two of which fall into that category. Also in the state here, there is a conspiracy statute, and this conspiracy statute states that people cannot conspire -- conspire to break the law. Your draft EIS states that -- in there that it's highly probable that there will be sediment entering into the streams, and that's point source pollution. By doing that, and by saying that, and by drafting this, composing this here sale in a domestic water stream, that the Forest Service is conspiring to break the law. It's a conspiracy violation. That I'm not going to tolerate it. I don't think anybody out in the cove will tolerate us having to drink water that has been contaminated. And the water being contaminated will be contaminated if you put roads in. The quartz in the roads create a silica, and the silica entering into the streams could enter in -- could enter into our water supply. Not only the silica, but there -- there has been studies, and -- and on yellow cedar and certain trees that have been fallen and dropped, and laying on the ground, and the amount of -- during their decomposition emit and release certain known toxins and acids, and stuff like that. And those also run off with the rain and enter into our streams, and right at the present time I don't filter, I don't have to filter my water. Should`-- should this happen I will be forced to filter, even though the filter systems, if I was to go to mi -- one micron filter

system, you have a heavy sediment, I'd have to bypass that system because of the heavy sediment. I could not, I don't think, afford to filter, because I'd have to be changing out the filters so readily, and they are quite expensive. When you go the one micron filter it gets up to 30, $40 a filter. Being on a fixed income and going through one or two filters a day, it's unaffordable to me. Also, you mention in your draft EIS that the residents will have their water containment tanks. I don't have water containment tanks, and I don't know of anybody but the lodge out there that do have water containment. They don't -- we don't have them. They also state that to decrease the sediment problem into our streams that they would divert water away from the road system. Well, you're putting a road through, and the road is going to be like a dam, and if you divert water away from the road system -- away -- from the road system, away from our -- our streams, then you're going to be reducing flow to the stream, and flow reduced from the streams by this dam you're putting through would be devastating. The streams get down to very low flow quantity during dry spells during the summertime, and if you was to decrease that further, then we would have no water for hot periods of time. So, given that, given the impact that you would have on our other food source, I strongly oppose any road building in the area, and go to the alternative one.

Any questions? Thank you.

MR. PETERSON: My name is Richard Peterson. I'm a lifelong resident of Kasaan. I'm the mayor here and the president of the tribal organization, and as Ron Leighton stated, the organized village of Kasaan will do everything and anything to protect the subsistence and quality of life of our tribal members, and first and foremost, I feel that water should be recognized as a subsistence. You can't subsist without water, and the wild habitat that you subsist off cannot subsist without water, so it's a domino effect. If the water source is affected, all of their subsistence is affected. I can speak on -- to the point of the water being contaminated here in Kasaan. The logging was done in our watershed and we had to shut down our filter system for about 6-1/2 months, which could have led to heavy fines, but we worked with the state around it. It would have been very expensive not to shut down. We would have had to go through several filters a day, and the one micron filters are extremely expensive.

But, I'd like to reiterate that the water is of utmost importance, the quality of water. Without that water you can't live in an area. It changes your daily life since time memorial, you know, Native people, especially in this area, have lived around water sources. They've moved to water sources, and in the present days, the communities, Native and non-Native alike cannot survive without a proper water source. So, the organized village of Kasaan will do everything it can

to assist our tribal members and their quality of life and protecting their quality of life, and we'll be here every step of the way, and we would appreciate the Forest Service working with the tribal government, as the government's government basis. That's needs to be respected, especially if there's a new language to reiterate how important government to government and tribal relations are.

So, anyways, that's all I have.

MR. LAWTON: Well, there seems to be no more testimony, so I will close the record at this time. We'll probably just go into some informal discussions, and it's about 11:46.

(Off record)

TRANSCRIBER'S CERTIFICATE

I, M. JUNE ZENGE, hereby certify that the foregoing pages numbered 2 through 12 are a true, accurate, and complete transcript of the subsistence hearing held in Kasaan, Alaska, transcribed by me from a copy of the electronic sound recording to the best of my knowledge and ability.

1/20/01 — M. June Zenge

Date — M. June Zenge, Transcriber

Cholmondeley Doc. No. 0325
File Desig. D35
Received 1/15/01

To: USFS
Dale Kaven - Craig Dist. Ranger
FROM: Joan L. Leighton
Saltery Cove Resident, P.O.W. Island
Re: Subsistence Meeting -
Kasaan, January 15, 2001

Date: 1-14-01

As a Native American Elder Woman, I wish to object to any and all logging in the Kasaan Skowl Arm, McKenzie Inlet and Saltery Cove portion of the Cholmondely proposed Timber Sale. Subsistence Areas. I have been an Alaska resident for more years than most of you are old. My husband and I live in the Saltery Cove area by choice and have a considerable investment both monetarily and emotionally in this subsistence area.

Our number one priority is our watershed which the USFS proposes to log. I consider water as the number one subsistence commodity. Without it we can not exist. We depend on it not only for domestic water but have water rights on a stream within the proposed sale that provides us with water for our Pelton wheel that gives us electricity the better part of the year.

We also live a subsistence life style utilizing Deer, Salmon, Halibut, Crab, shrimp, Clams, Wolves & Bear. In addition in season we pick berries, goose tongue, beach asparagus and Devils Club for a medicinal tea used traditionally by our forefathers.

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Page 2
1-14-01 - USFF
From - J. Leighton

When McKenzie Inlet was being logged (By Helicopter) there was so much debris in the water in our area that we had our propeller damaged on our boat. We also had 3 shrimp pots lost either by tugs towing rafts out of McKenzie or just simply taken - Loggers working the area frequently would rob our normally productive pots and abuse the pristine area.

Even the Forest Service in their Draft EIS indicates our deer population would demenish and our streams in our watershed would silt up. If our stream silts up - we would have damage to our primary source of energy - the Pelton Wheel.

I urge you to re-think the area you are planning to log - As large as the Tongass is there surely must be other areas to consider that do not have small communities and lodges located within. It becomes clear to me that the Forest Service is not listening to what all of us here in Saltery Cove have to say. The tall timber you propose to cut is shelter for game that we use for our meat supply!

Sincerely
Joan L. Leighton

1-14-01

U.S.F.S.
Comments on draft EIS
Cholmondeley
To All Parties Concerned.

We want it known that we, Melvin and Evelyn Fairbanks of Saltery Cove, P.O.W.I., do protest the logging of our area. We have lived and worked here for over twenty years.

The area is of great importance to us and our neighbors. Not only our livelihood is at stake, but our survival. We rely on the crab, shrimp fish and deer to survive, as well as our neighbors. The area is small, but relied on by all of us. We have not stores close to use, as this is the way we want it. If the area is logged you have just increased the amount of people using it. We have people from as far away as Wrangell to Ketchikan and all of our villages around that use this area for deer hunting and without our winter grounds, they will leave. With extra people, the shellfish and fishing will be hit hard and when they're done logging, they leave! And we're here, left with their leftovers and that's not much. For atleast five to ten years things will be really

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-2-

slim. Is that how Alaska wants her people to live? I think not.

Alaska has been a good way of life for us and our son. We have been loggers and commercial fisherman and have seen our life style vanish. We have commercial fished this area for fifteen years and have taken great care as not to over due it. With logging coming in and more log traffic, we stand to lose a lot. If not all. When they take out our prawn pots with tugs or log rafts. It's not on purpose, but we still lose. Not only money, gear and time, but our way of life.

Remember please, Alaska is for her people and the way of life. Help us and chose another area not populated or one that wants this.

Thank you

Mel & Lei Fairfax
Saltery Cove, P.O.B.

Cholmondeley Doc. No. 0327
File Desig. DBc

Received 1/15/01

Dan & Liz Williams
P O Box 361
Kasaan, Alaska 99950

January 15, 2001

SUBJECT: SUBSISTENCE HEARING ON CHOLMONDELY DRAFT EIS
PLACE: KASAAN CITY HALL

My name is Dan Williams. My wife and I have lived in the Ketchikan area for 36 years and owned our property in Saltery Cove for 20 years. We were drawn to the area because of the remote location and the fact that there are no roads connecting it to the rest of the island. Three years ago we retired and made Saltery Cove our permanent residence. We are in the process of building a log home that we expect to occupy this year.

The effect on subsistence of the proposed Cholmondeley Timber Sale is of great concern to us. Should the sale be approved it would place a large concentration of people, who have no long term interest, in the middle of the very area that we have traditionally shrimped, crabbed, fished (both salmon and bottom fish) clammed and hunted. When the weather is bad, which it often is, Mckenzie Inlet has always provided this community with a close and protected area in which we can harvest. The LTF that is proposed for Mckenzie is right on a prime shrimp and bottom fish location. There are also clams and crabs nearby. There have been two logging operations in the past few years that took place in McKenzie Inlet. Nearly all the residents of Saltery Cove experienced problems with the logging. Floating debris that fowled buoy lines on shrimp and crab pots, damaged props due to the large amount of floating tree limbs, people from the camps pulling our pots without permission. Entire shrimp pots disappeared due to tug and raft operations. These logging operations were fairly small and only lasted a few months. I can only imagine the impact of a sale that is projected to last 3 to 4 years. C-1 C-2 C-3

The deer population has remained stable in and around Saltery Cove for years. I am sure if the sale goes through that it will decline as roads are built through prime deer habitat. The camps also bring increased pressure on the population as larger amounts of people are harvesting the deer. The proposed logging also includes the deer's winter grounds. The residents here all hunt and venison is a big part of our staple diet. We would certainly feel the effects of the damage to the deer population. C-4

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The worst damage will be to our watershed that provides our biggest subsistence need of all. Clean unpolluted drinking water. Water to clean and prepare all the other foods the area provides. A road through our watershed and cable logging in it is bound to affect our drinking water. The road will act as a dam and interrupt the natural drainage we need for full catchment. Trees dragged through or left in the small feeder streams will divert and destroy true catchment. If a truck drops a transmission in the area it's oil will seep into our water. If the drainage is altered we could possibly be without water in the dry months of summer and the really cold months of winter. These streams cnrrently provide good water year round. C-5 C-6 C-7 C-8

In closing I want to go on record to strongly oppose any logging in unit 614-001a, 614.001b and the LTF in the Mckenzie Inlet. I feel that both would have very detrimental effects on our subsistence use of the area.

Sincerely,

Dan Williams

Dan Williams

Liz Williams

Cholmondeley Doc. No. 0328
File Desig. D3c
Received 1/15/01

1-15-2001

To: U.S. Forest Service:

The logging proposed for the Cholmondeley timber sale will interfer with our subsistance area.

The LTF is placed in an area that we fish and shrimp. C-1

The proposed road will go through an area that we use for deer hunting. There are trails in the area that we have flagged. C-2

Every year we pick blueberries and huckleberries in the proposed logging area.

The most important subsistance issue is our water. If our water is silted or the flow disrupted then we will no longer beable to live on our land. C-3

Do not log in our subsistance area.

Dennis & Mary Owens
Saltery Cove

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Appendix C

Mitigation Measures

Appendix C

Project-specific Mitigation Measures

Mitigation measures described below are site-specific mitigation measures tied to specific Forest-wide Standards and Guidelines and/or Best Management Practices listed in the Forest Plan (for example, MG12-II refers to a standard and guideline in the Minerals and Geology section of the Forest Plan). The wordings used in the mitigation measure descriptions in this appendix are paraphrases of Forest Plan standards and guidelines and BMP's. Refer to the Forest Plan for details. The Forest Plan takes precedence over this appendix.

Appendix C includes a table used to indicate the applicable harvest units or roads for each mitigation measure.

I. Site-specific Mitigation Measures Incorporated into Unit and Road Design

The specific mitigation measures that are applied to selected units and/or roads in a project are on unit and road cards (Appendices 2 and 3) and repeated in this section. The source(s) of each general measure are listed after the measure in terms of individual Forest-wide Standards and Guidelines (see Chapter 4 of the Forest Plan) or BMP's (see Appendix C of the Forest Plan and Chapter 10 of FSH 2509.22, The Soil and Water Conservation Handbook). The table following this list indicates to which units and/or roads each measure applies. The unit and road cards in Appendices 2 and 3 include detailed information pertaining to the site-specific application of BMP's and Forest Plan standards.

MINERALS AND GEOLOGY

M1 Protection of Mineral Development Improvements: Protect known mineral development improvements, such as mine claim markers, by specifications in timber sale and road construction contracts. (MG12 - II)

Units: all

M2 Access to Mining Claims: Permit reasonable access to mining claims in accordance with approved plans of operation. (MG12-I)

Units: all

KARST AND CAVE RESOURCES

K1 Avoid Effects on Karst/Cave Features: Avoid road construction or modify harvest unit design to avoid impacts on karst or cave features. (KARST - III-4)

Units: 674-032 and 675-032.

K2 Suspension Requirements to Protect Karst/Cave Features: Use partial to full suspension for yarding to reduce effects of harvest on karst or cave resources. (KARST - III4 and Appendix I of the Forest Plan FEIS)

Unit: 674-032

K3 Other Specific Protection Measures for Karst/Cave Features: Develop site-specific protective measures for karst and cave features. (KARST - III4)

Unit: 674-032

FISH, WATER, and SOILS

F1 Riparian Buffers: Maintain riparian areas in mostly natural condition through implementation of no-harvest and selective cut buffers along selected streams and around lakes as defined by the Riparian Standards and Guidelines. (RIP2, BMP 12.6)

Units: 614-001a,-001b,-002,-034a,-034b,-005, 615-025, 616-007,-008,-010,-011,-012,-013,-016,-017,-018, -019,-021, -022,-023,-024,-123,-275, 617-009, 674-032,-537,-548,-583, 675-028,-029,-030,-031,-033,-037, -462.

F2 Directional Felling Along Buffers: Trees identified for harvest will be felled to avoid stream courses and riparian areas designated for "no commercial harvest." (RIP2-II)

Units: all

F3 Class III/IV Stream Protection: Split yard and directionally fall trees away from all Class III streams and from Class IV streams where feasible. (RIP2-II)

Units: 614-002,-034a,-034b,-005, 615-025, 616-007,-008,-012,-016,-021,-022,-023,-024,-123,-275, 674-548, -551,-583, 675-030,-033,-037, 676-592.

F4 Yarding Across Streams: Fully suspend logs where yarding is to be done across streams or the full length of a stream or drainage. When this is not feasible for Class IV streams, trees may be partially suspended when yarding across streams. (RIP2-II)

Where applicable.

F5 Fish Passage: Maintain fish passage at Class I and II stream road crossings using properly designed stream crossing structures (consult the Aquatic Habitat Management Handbook, FSH 2609.24). (FISH112-IV)

Roads: 21700001, 21800001, 21800003

F6 Use of Bridges: Install bridges at designated stream crossings to minimize the amount of sediment entering streams and/or to ensure good fish passage. (TRAN 214-II)

Units: 616-012,-021, 675-028, 675-029,

Roads: 2170000-1, 2180000-1, 219000-2 inside the previous units.

F7 Instream Construction Timing Restrictions: Implement timing restrictions for instream construction activities for the protection of anadromous and resident fish. (RIP2-II and BMP's 14.6, 14.10, 14.14, and 14.17)

Roads: 21700000-2, 2170000-3, 2180000-2, 2180000-3, 2190000-2.

F8 Siting of Road-Stream Crossings: Modify the location of road-stream crossings to correspond with stable stream reaches. (TRAN214-II)

Roads: on all roads most stable crossing options will be explored during layout.

F9 Routing of Roads near Streams: Modify road routes to avoid locations near fish-bearing streams. (TRAN214-II)

Roads: 2170-1

F10 Avoid wetlands and other sensitive areas during road location, design and construction. (TRAN214-III, BMPS 12.4, 12.5, and 14.2)

Roads: 2170000-1,-2,-3, 2170450, 2180000-1,-2, -3, -4, 2180100, 2180150, 2180200, 2180300, 2180310, 2180320, 2180400, 2180600, 2180700, 2190000-1, 2190000-2, 2190100.

F11 Avoid wetlands and other sensitive areas during unit location, design, and harvest. (S&W112-I, BMP 12.4, 12.5 and 13.2)

Units: 614-001a, -001b,-002,-034a,-034b,-005, 615-025, 616-007,-008,-010,-011,-012,-013,-016,-017,-018, -019,-021,-022,-023,-024,-123,-275, 617-009, 674-032,-537,-548,-549,-550,-551,-583, 675-028,-029,-030, -032,-033,-037, 676-462,-472,-484,-489,-500.

F12 Use Access and Travel management to reduce erosion and protect water quality. Control access and manage road use to reduce the risk of erosion and sedimentation from road surfaces disturbance especially during the higher risk periods associated with high runoff and spring thaw conditions. (BMP's 14.8, 14.20, and 14.22)

Roads: 2170000-1,-2,-3, 2170450, 2180000-1,-2, -3, -4, 2180100, 2180150, 2180200, 2180300, 2180310, 2180320, 2180400, 2180600, 2180700, 2190000-1, 2190000-2, 2190100.

F13 Storm-proofing Roads: Design system roads with oversized culverts, outfall riprap, armored dips adjacent to culverts, substantial ditch blocks, drivable waterbars, and/or other measures to prevent culvert failure or erosion during periods of inactivity. (TRAN22-I)

Roads: None. All roads on the Cholmondeley Project Area will be put in storage following timber harvest.

F14 Road Storage: Place roads in long-term storage by removing culverts and/or providing safety drainages at each crossing. (TRAN22-I, BMP 14.22)

Roads: All roads on the Cholmondeley Project Area.

F15 Avoid Harvest on slopes over 72% and Very High Hazard Soils: In the following list of units where slopes over 72% are proposed for timber harvest follow guidelines in the Forest Plan. (S&W112-I, BMP 13.5)

Units: 614-001a, 614-0034a&b, 614-005, 615-025, 616-007, 616-008, 616-011, 616-013, 616-016, 616-019, 616-021, 616-023, 616-024, 616-275, 674-548, 674-549, 674-550, 674-551, 675-030, 675-033, 675-037, 676-462, 676-484, 676-489.

F16 Avoid Road Development on slopes over 67% gradient: Avoid road construction along unstable slopes, including slopes > 67%. (S&W112-I and BMP13.5)

Roads: 2170-1, 2170-3, 21701450, 2180-2, 2180-4, 2180150, 2180200, 2180310, 2180320, 2180400, 2190100.

F17 Where road construction on slopes over 67% gradient is unavoidable, follow BMP 1.7 and S&W112-1.

Roads: 2170-2, 2180-1, 2180-3, 2180100, 2180300, 2180600, 2180700, 2190-1, 2190-2.

F18 Follow BMP 13.9 to determine the appropriate yarding techniques to protect soil productivity and prevent soil erosion. (BMP 13.9, S&W112-1)

Units: all

F20 Domestic Water Supply Protection: In watersheds used for domestic water supply, use stringent application of BMP's 12.6a, 12.8, 12.9, 13.2, 14.2, 14.5, 14.6, 14.8, 14.10, 14.17, 14.18, 14.19, and 14.20, as outlined on the unit and road cards, to minimize impacts to streams used for drinking water. Special measures could include limited rock pit development in domestic watersheds where practicable; sediment traps in newly constructed ditchline and at the outlet of ditch relief culverts and water quality streams, and timing of road construction activities to avoid extremely wet periods.

Units: 614-001a, 616-010, 675-028,-029.

Roads 2170000-1, 2170000-2, 2180000-1, 2190000-1, 2190000-2.

F21 Watershed Analysis: Conduct watershed analysis (per Appendix J of the Forest Plan FEIS) in order to refine prescriptions and more fully address cumulative watershed effects. (S&W112-II, BMP 12.1)

Units: all.

Roads: all.

F26 Water Quality Protection for Mariculture: Drop road plans south of Sunny Creek.

TIMBER

T1 Maintain Advance Regeneration: Maintain advance regeneration within the unit to meet reforestation needs and stand objectives. (TIM111-2-I)

Units: 615-025, 616-011, 674-549,-550,-551, 675-033.

T4 Timing of Helicopter Operations: Helicopter water or barge drops are prohibited in Saltery Cove from 3 p.m. to 7 a.m. between Memorial Day and the end of September. Helicopter drops are prohibited in Clover Bay between June 1 and mid-August.

Units: 614-001a & b,-002,-034a & b,-005, 616-007,-008,-010,-011,-012,-013,-016,-017, 617-009.

T5 Administration during Operations: Forest Service contract representatives will be on site, on a regular basis, during critical road building operations in the drinking water watersheds of Saltery Cove, Sunny Cove, and Clover Bay.

Roads: 2170000-1, 2170000-2, 2180000-1, 2190000-1, 2190000-2.

WILDLIFE and THREATENED/ENDANGERED/SENSITIVE SPECIES

W1 Even-aged Clearcutting with Reserves: Provide for greater habitat diversity on a stand level over time by using clearcutting with reserve trees (even-aged system) as a harvest prescription (see Appendix G to Forest Plan FEIS). Reserves do not meet criteria for two-aged management (WILD112 - III)

Units: 614-002,-034a & b,-005, 616-007,-008,-010,-011,-013,-016,-018,-019,-021,-022,-023,-024,-123,-275, 617-009, 674-537,-548,-583, 675-028,-029,-030,-031,-032,-033,-037, 676-462,-472,-484,-489,-500,-592.

W4 Two-aged Management with Reserves: Provide for greater habitat diversity on a stand level over time by leaving reserve trees (two-aged system) as a harvest prescription; meets two-aged criteria (see Appendix G to Forest Plan FEIS). (WILD112 - III)

Units: 616-007,-008,-012,-013,-024. (614-001a & b,-002,-034a & b,-005 Alternative 3 only)

W5 Even-aged Patch or Strip Clearcutting: Provide for greater habitat diversity on a stand level over time by using patch or strip corridors as a harvest prescription. Does not meet two-aged criteria (see Appendix G to Forest Plan FEIS) (WILD112-III)

Units: 616-022,-023.

W6 Uneven-aged Selection Harvest: Provide for greater habitat diversity on a stand level over time by using the selection method (group or individual tree) as a harvest prescription (see Appendix G to Forest Plan FEIS). (WILD112 - III)

Units: 614-002, 616-017, 674-032

W7 Leaving Non-merchantable Trees and Snags: Provide for greater habitat diversity on a stand level over time by leaving safe non-merchantable trees and snags after harvest. (WILD112 - III)

Units: all units leave some trees and/or snags.

W8 Restrictions on Helicopter Yarding: Modify helicopter yarding routes and/or timing of helicopter activity to avoid important wildlife habitats (e.g., mountain goat summer/kidding habitat or active eagle nest sites. (WILD112-XII)

Nests close to Sunny Point and McKenzie LTF's.

W9 Road Closures: Close roads to motorized use after silvicultural activities are complete to protect wolves, marten and other large predators and furbearers from over-harvest. (WILD112)

Roads: 2170000-1, 2170000-2, 2180000-1, 2190000-1, 2190000-2

W13 Protection of Bald Eagle Nest Trees/Other Sites and Timing of Activities: Manage bald eagle habitat in accordance with the Interagency Agreement established with the U.S. Fish and Wildlife Service. (WILD112-V)

McKenzie Inlet, Clover Bay, and Sunny Cove.

W20 Protection of Trumpeter Swan Nesting, Brooding, and Wintering Areas and Timing of Activities: Avoid all activity, modify unit or road design, and/or limit timing of activities, within 0.5 mile of wetlands used by nesting, brood-rearing, and wintering trumpeter swans to avoid impacts. (TE&S-II)

Unit: 614-002

W22 Timing of Activities and Disturbance of Herons and Raptors during Nesting: Minimize disturbance of heron rookeries and raptor nests, by restricting development activities to periods outside the active nesting season (generally March 1 to July 31). (WILD112-X)

Where applicable.

W28 Management of Marten Habitat: Maintain important features of forest stand structure in harvest units in order to manage high value marten habitat within units according to Forest-wide Standard & Guideline WILD112-XVI,A,2. (This applies to VCU's in high risk biogeographic provinces). (WILD112-XVI)

Units: 614-001a & b,-002,-005, 615-025, 616-011,-012,-023,-123,-275, 674-032,-537,-548,-549,-551, 675-028,-030,-032,-033,-037.

W31 Protection of Sensitive Plant Species: Modify unit boundaries or road routing to avoid habitats supporting populations of sensitive plant species. (TE&S-II)

Unit: 616-012

W34 Wildlife Habitat Restoration or Enhancement: Conduct wildlife habitat restoration in young-growth conifer stands to accelerate development of advanced seral stand structure. Treatments may include thinning of young stands, release pruning, fertilization, or prescribed fire. (May be appropriate in high value deer or moose winter range, along beach fringe, etc) (WILD22-I and FIRE2-I)

Potential in all units.

HERITAGE RESOURCES

H1 Avoid Direct Effects on Heritage Resource Sites: Avoid road construction or harvest unit placement where applicable in areas with heritage resource value. (HER - IV)

RECREATION AND TOURISM

R1 Access Restrictions for Recreation: Close or restrict access on roads to maintain remoteness of areas after harvest. (REC112-II)

Roads: 2170000-1, 2170000-2, 2180000-1, 2190000-1, 2190000-2.

SCENERY

V1 Even-aged Clearcutting with Reserves: Reduce visual contrast with adjacent areas by using clearcutting with reserve trees (even-aged system) as a harvest prescription; does not meet two-aged criteria (see Appendix G to Forest Plan FEIS). (VIS11 - III)

Units: 614-002,-034a.-034b,-005, 616-007,-008,-010,-011,-013,-016,-018,-019,-021,-022,-023,-024,-123,-275, 617-009, 674-537,-548,-549,-550,-551,-583, 675-028,-029,-030,-031,-032,-033,-037, 676-462,-472,-484, -489,-500,-592.

V4 Two-aged Management with Reserves: Reduce visual contrast with adjacent areas by leaving reserve trees under a two-aged system as a harvest prescription (see Appendix G to Forest Plan FEIS). (VIS11-III)

Units: 614-001a,-001b,-002,-034a,-034b,-005, 616-007, portions of 616-008,-012,-013,-024.

V5 Even-aged Patch or Strip Clearcutting: Reduce visual contrast with adjacent areas by using patch or strip clearcutting (uneven-aged systems) as a harvest prescription. Does not meet two-aged criteria (see Appendix G to Forest Plan FEIS) (VIS11-III)

Units: 616-022,-023.

V6 Uneven-aged Selection Harvest: Reduce visual contrast with adjacent areas by using the selection method (uneven-aged system) as a harvest prescription (see Appendix G to Forest Plan FEIS). (VIS11 - III)

Units: 614-002, 616-017, 674-032.

V7 Leaving Non-merchantable Trees and Snags: Reduce visual contrast with adjacent areas by leaving most non-merchantable trees after harvest. (VIS11 - III)

Units: all units leave some trees and/or snags.

V8 Modification of Unit Boundaries: Modify unit boundaries to assure that the harvest unit meets the proposed VQO in partial retention and retention areas. (VIS11-II)

Units: 614-001a,-001b,-002,-034a,-034b, 615-025, 616-018,-022,-023,-024,-123, 674-032,-537,-548,-549, -550,-551,-583, 675-028,-029,-030,-031,-032, 676-462,-472,-489,-592.

V9 Treatment of Rock Sources: Locate rock sources off the roads in the project area that in future may provide recreation opportunities and/or locate them to minimize visibility from Visual Priority boat routes or saltwater use areas, and use a landscape architect in the planning/design of rock pits. (VIS11-II)

Locate rock pits off future recreation roads: 2180000-1, 2180000-2.

Locate and design rock pits to minimize visibility from Visual Priority boat routes and saltwater use areas and from Monie Lake and Swan Lake: 2170000-1,-2, 2170100, 2180000-3,-4, 2180300, 2180700, 2190000-1,-2.

V11 LTF Design: Use low profile LTF design to minimize visibility from Visual Priority Travel Routes and Use Areas. (VIS11-II)

All LTF's

V13 Exceed Visual Quality Objectives: VQO's met are higher than Forest Plan adopted VQO's in most of the alternatives at the project key access points.

Units: 614-001a,-001b,-002,-034a,-034b, 616-010,-022,-23,-024,-123, 675-028,-029,-030, 676-462,-472,-484, -489,-500,-592.

V14 Sort Area Design: Design sort yard and road to minimize visual impact. Could include vegetative buffer screen along beach, road alignment adjustment, and/or re-establishment of vegetation.

Clover Bay and McKenzie Inlet LTF's.

SUBSISTENCE

S1 Access Restrictions for Subsistence: Close or restrict access on roads to maintain remoteness of areas after harvest to address subsistence issues. (SUB-I)

Roads: 2170000-1, 2170000-2, 2180000-1, 2190000-1, 2190000-2.

II. Mitigation Measures by Unit and Alternative

For each site-specific mitigation measure listed above, the tables on the next pages indicate the units and alternatives to which the measure applies.

Table C-1: Site-Specific Mitigation Measures

Unit	Alt2	Alt3	Alt4	Alt5	M1	M2	K1	K2	K3	F1	F3	F5	F6	F7	F8	F9	F10	F11	F12	F13	F14	F15	F16	F17	F18	F19	F20	F21	F29	T1	T2	T4	T5	W1	W4	W5	W6	W7	W8	W9	W13	W30	W28	W31	W33	W34	H1	R1	V1	V4	V6	V8	V7	V9	V5	V11	V13	V14	S1
614-001a		x	x	x	x	x				x			x					x				x			x			x				x		x																									
614-001b	x	x	x	x	x	x				x			x					x				x			x		x	x				x		x																									
614-003	x	x	x	x	x	x				x	x							x							x			x				x		x																									
614-034a	x	x	x	x	x	x				x	x							x				x			x			x				x		x																									
614-034b	x	x	x	x	x	x				x	x							x				x			x			x				x		x																									
614-005	x	x	x	x	x	x				x	x							x				x			x			x				x		x																									
615-025	x	x		x	x	x				x	x							x				x			x			x				x																											
616-007	x	x	x	x	x	x				x	x							x				x			x			x				x		x	x			x																					
616-008	x	x	x	x	x	x				x	x							x				x			x			x				x		x	x			x																					
616-010	x		x	x	x	x				x								x							x		x	x				x		x				x																					
616-011	x	x	x	x	x	x				x								x				x			x			x		x		x		x				x																					
616-012	x	x	x	x	x	x				x	x		x					x							x			x				x			x			x																					
616-013	x	x	x	x	x	x				x								x				x			x			x				x		x	x			x																					
616-016	x	x	x	x	x	x				x	x							x				x			x			x				x		x				x																					
616-017	x	x	x	x	x	x				x								x							x			x				x					x	x																					
616-018	x	x		x	x	x				x								x							x			x						x				x																					
616-019	x	x		x	x	x				x								x				x			x			x						x				x																					
616-021	x	x		x	x	x				x	x		x					x				x			x			x						x				x																					
616-022	x	x		x	x	x				x	x							x							x			x						x		x																							
616-023	x	x		x	x	x				x	x							x				x			x			x						x		x		x																					
616-024	x	x		x	x	x				x	x							x				x			x			x						x	x			x																					
616-123	x	x		x	x	x				x	x							x							x			x						x																								
616-275	x	x		x	x	x				x	x							x				x			x			x						x				x																					
617-009	x	x	x	x	x	x				x								x							x			x				x		x				x																					
674-032	x	x		x	x	x	x	x	x	x								x							x			x						x			x	x																					
674-537	x	x		x	x	x				x								x							x			x						x				x																					
674-548	x	x		x	x	x				x	x							x				x			x			x						x				x																					
674-549	x	x		x	x	x												x				x			x			x		x																													
674-550	x	x		x	x	x												x				x			x			x		x																													
674-551	x	x		x	x	x					x							x				x			x			x		x																													
674-563	x	x		x	x	x				x	x							x							x			x						x				x																					
675-028	x	x	x	x	x	x				x			x					x							x		x	x						x				x																					
675-029	x	x	x	x	x	x				x			x					x							x		x	x						x				x																					
675-030	x	x	x	x	x	x				x	x							x				x			x			x						x				x																					
675-031	x	x		x	x	x				x															x			x						x				x																					
675-032	x	x		x	x	x	x	x										x							x			x						x				x																					
675-033	x	x	x	x	x	x				x	x							x				x			x			x						x				x																					
675-037	x	x	x	x	x	x				x	x							x				x			x			x						x				x																					
676-462	x	x	x	x	x	x				x								x				x			x			x						x				x																					
676-472	x	x	x	x	x	x												x							x			x						x				x																					
676-484	x	x	x	x	x	x												x				x			x			x						x				x																					
676-489	x	x	x	x	x	x												x				x			x			x						x				x																					
676-500	x	x	x	x	x	x																			x			x						x				x																					
676-592	x	x	x	x	x	x					x														x			x																														
Roads																																																										
2.2E+07		x	x	x								x	x		x	x		x		x		x		x										x																									
2.2E+07		x	x	x										x	x			x		x		x		x										x																									
2.2E+07		x	x	x										x	x			x		x		x		x										x																									
2170450		x	x	x											x			x		x		x		x										x																									
2.2E+07			x	x								x	x		x			x		x		x		x										x																									
2.2E+07		x	x	x										x	x			x		x		x		x										x																									
2.2E+07		x		x								x		x	x			x		x		x		x										x																									
2.2E+07		x		x											x			x		x		x		x										x																									
2180100		x	x	x											x			x		x		x		x										x																									
2180150		x	x	x											x			x		x		x		x										x																									
2180200		x	x	x											x			x		x		x		x										x																									
2180300		x	x	x											x			x		x		x		x										x																									
2180310		x	x												x			x		x		x		x										x																									
2180320		x	x												x			x		x		x		x										x																									
2180400		x													x			x		x		x		x										x																									
2180600		x													x			x		x		x		x										x																									
2180700		x													x			x		x		x		x										x																									
2.2E+07		x	x												x			x		x		x		x										x																									
2.2E+07		x	x												x			x		x		x		x										x																									
2190100		x	x												x			x		x		x		x										x																									

Table C-2: BMP Mitigation in Project Units

Unit	Alt2	Alt3	Alt4	Alt5	12.5	12.6	12.6a	13.2	13.5	13.9	13.16	14.2
614-001a	x	x	x	x	x	x	x	x	x	x	x	
614-001b	x	x	x	x	x	x	x	x		x	x	
614-002	x	x	x	x	x	x	x	x	x	x	x	
614-034a	x	x	x	x		x	x	x	x	x	x	
614-034b	x	x	x	x	x	x	x	x	x	x	x	
614-005	x	x	x	x	x	x	x	x	x	x	x	
615-025	x	x		x	x	x	x	x	x	x	x	
616-007	x	x	x	x	x	x	x	x	x	x	x	
616-008	x	x	x	x	x	x	x		x	x	x	
616-010	x		x	x	x	x	x	x	x	x	x	
616-011	x	x	x	x	x	x	x	x	x	x	x	
616-012	x	x	x	x	x	x	x			x	x	
616-013	x	x	x	x	x	x	x		x	x	x	
616-016	x	x	x	x	x	x	x	x	x	x	x	
616-017	x	x	x	x	x	x	x			x	x	
616-018	x	x		x	x	x	x	x		x	x	
616-019	x	x		x	x	x	x	x	x	x	x	
616-021	x	x		x	x	x	x	x	x	x	x	
616-022	x	x		x		x	x	x			x	
616-023	x	x		x	x	x	x			x	x	
616-024	x	x		x	x	x	x		x	x	x	
616-123	x	x		x	x	x	x		x	x	x	
616-275	x	x		x	x	x		x	x	x		
617-009	x	x	x	x	x	x	x			x	x	
674-032	x	x		x		x	x	x		x	x	
674-537	x	x		x	x	x	x	x	x	x	x	
674-548	x	x		x	x	x	x	x		x	x	
674-549	x	x		x		x	x	x		x	x	
674-550	x	x		x		x	x	x	x	x	x	
674-551	x	x		x		x	x	x	x	x	x	
674-583	x	x		x	x	x	x	x		x	x	
675-027	x	x		x		x		x	x		x	x
675-028	x	x	x	x	x	x	x	x	x	x		
675-029	x	x	x	x	x	x		x		x	x	
675-030	x	x	x	x	x	x	x	x	x	x	x	
675-031	x	x		x	x	x	x	x	x	x	x	
675-032	x	x		x	x	x	x	x	x	x	x	
675-033	x	x	x	x		x	x	x	x	x	x	
675-037	x	x	x	x		x	x	x	x	x	x	
676-462	x	x	x	x		x	x	x	x	x	x	
676-472	x	x	x	x	x	x		x	x	x		
676-484	x	x	x	x		x	x	x	x	x	x	
676-489	x	x	x	x	x	x		x	x	x		
676-500	x	x	x	x		x	x	x		x	x	
676-592	x	x	x	x	x	x	x	x		x	x	

Table C-3: BMP Mitigation on Project Roads

Roads	Alt2	Alt3	Alt4	Alt5	12.5	12.8	13.2	14.2	14.3	14.5	14.6	14.7	14.8	14.9	14.10	14.11	14.12	14.14	14.17	14.18	14.19	14.20	14.22	14.25
21700001		x	x	x	x	x	x	x			x	x	x	x		x	x	x						x
21700002		x	x	x	x	x	x	x			x	x	x	x	x	x	x	x		x	x	x		
21700003		x	x	x	x	x	x	x				x		x			x			x				
2170450		x	x	x		x						x		x			x			x				
21800001			x	x		x	x	x	x				x	x		x								
21800002		x	x	x	x	x		x					x				x				x			
21800003		x		x		x	x	x			x	x					x				x		x	
21800004		x		x	x	x						x					x				x		x	
2180100		x	x	x	x	x						x					x				x		x	
2180150		x	x	x	x	x											x				x		x	
2180200		x	x	x	x	x											x				x			
2180300		x	x	x	x	x	x	x				x					x				x		x	
2180310		x	x		x	x						x												
2180320		x	x		x	x		x				x					x				x		x	
2180400		x			x	x	x					x		x		x	x		x	x	x		x	
2180600		x			x	x	x					x					x				x		x	
2180700		x			x	x	x					x					x				x		x	
21900001		x	x		x	x	x			x	x	x	x	x	x	x	x	x	x		x		x	
21900002		x	x		x	x	x					x					x				x		x	
2190100		x	x			x	x					x		x			x				x	x	x	

Appendix D

Biological Assessments and Evaluations

Cholmondeley Timber Sale

Biological Assessment

for the

Endangered Humpback Whale and Snake River Sockeye Salmon and Threatened Steller Sea Lion, Snake River Spring/Summer/Fall Chinook Salmon

for the Tongass National Forest

May 2000

Prepared By: Marla Dillman
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Approved By: _____ Date: _____
John M. Hannon
Fish and Wildlife Staff Officer, Craig Ranger District, Tongass National Forest

D Appendix

Biological Assessment

Cholmondeley Timber Sale

This Biological Assessment (BA) was prepared for the Cholmondeley Timber Sale as required by Section 7 of the Endangered Species Act (ESA) as amended and the USDA Forest Service threatened, endangered, and sensitive plant and animal species policy (FSM 2670). This document examines the potential impacts of the Cholmondeley Timber Sale on the humpback whale and Steller sea lion. The National Marine Fisheries Service (NMFS) concurred with the Forest Service finding that the Forest Plan would not likely adversely affect listed species under the jurisdiction of NMFS (see previous BA dated April 1992). This update includes consideration of only the humpback whale as likely to occur in coastal waters possibly affected by the proposed action.

Identification of Endangered and Threatened Species and/or Critical Habitats for Such Species Within the Project Area.

The following species were identified by NMFS as possibly occurring within the Project Area and are considered in this document.

Endangered:

Humpback Whale	*Megaptera novaeangliae*
Snake River Sockeye Salmon	*Onocorhynchus nerka*

Threatened:

Steller Sea Lion	*Eumetopias jubatus*
Snake River Spring/Summer Chinook Salmon	*Onorhynchus tshawytscha*
Snake River Fall Chinook Salmon	*Onorrhynchus tshawytscha*

The NMFS completed a final recovery plan for the humpback whale in 1991 and the Steller sea lion in 1992.

There has been no critical habitat officially designated for the whales at this time in Southeast Alaska. Critical habitat was designated for the Steller sea lion by NMFS in 1993 and represents areas considered essential for the continued survival and recovery of the species (NMFS 1993). Critical habitat provides notice to Federal agencies that a species is dependent on these areas for its continued existence and that any Federal action that may affect these areas is subject to consultation requirements of Section 7 of the Endangered Species Act (ESA). Critical habitat at theses sites includes a 3,000-foot distance landward and seaward from the rookery or haulout site. It also includes a 3,000-foot elevation air zone above these terrestrial and aquatic zones. The sites that have been designated in Southeast Alaska include, but are not limited to, Cape Addington and Coronation Island. Both these sites are 50 or more miles from the Cholmondeley Project Area.

D Appendix

Overview of Species Distributions, Populations and Habitats.

The following summary of the whales was developed using information provided by the NMFS final recovery plans for the humpback whale and Steller sea lion, and document summarizing the ecology of the humpback whales and Steller sea lions titled "Background Biological Information for Humpback Whales and Steller Sea Lionsî (NMFS, Anonymous undated), and information contained in the NMFS proposed rule to reclassify the Steller sea lion (NMFS, 1995).

Humpback Whale

Humpback whales (*Megaptera novaeangliae*) are regularly sighted in the Inside Passage and coastal waters of the southeastern Alaskan Panhandle from Yakutat south to Queen Charlotte Sound. Humpback whales feed in Southeast Alaskan waters from about May to December, although whales have been seen in every month of the year. Peck numbers of whales are usually found in nearshore waters during late August and September, but substantial numbers will remain until early winter.

The local distribution of humpbacks in Southeast Alaska appears to be correlated with the density and seasonal availability of prey, particularly herring (*Clupea harengus*) and euphausiids. Important feeding areas include Glacier Bay and the adjacent portions of Icy Straight, Stephens Passage/Frederick Sound, Seymour Canal and Sitka Sound. Glacier Bay and Icy Straight appear to be important feeding areas early in the season, when whales prey heavily on herring and other small schooling fish. Frederick Sound is important later in the summer when whales feed on swarming euphausiids. During autumn and early winter, humpbacks move out of the sound to areas where herring are abundant particularly Seymour Canal. Other areas of Southeast Alaska may be important for humpbacks as well but these areas have not been evaluated. These areas include Cape Fairweather, Lynn Canal, Sumner Strait, Dixon Entrance, the west coast of Prince of Wales Island and offshore banks such as the Fairweather Grounds.

Humpback whale population estimates in Southeast Alaska range from 374 (+/- 47, 95% confidence interval), (Baker et al., 1986) to 547(+/- 43, 95% confidence interval), (Baker et al., 1992).

Because the humpback inhabits shallow coastal waters, it is increasingly exposed to human activity. Consequently, these whales may be more susceptible to confrontational disturbance, displacement and loss of habitat from environmental degradation than some other whale species.

Humpbacks summering in Southeast Alaska have been linked to each of three wintering areas in Mexico, Hawaii and Asia.

Steller Sea Lion

The Steller sea lion (*Eumetopias jubata*) ranges from Hokkaido, Japan, through the Kuril Islands and Okhotsk Sea, Aleutian Islands and central Bering Sea, Gulf of Alaska, Southeast Alaska and south to central California. The centers of abundance and distribution are the Gulf of Alaska and Aleutian Islands. The number of sea lions observed on certain rookeries from the Kenai Peninsula to Kiska Island declined by 63% since 1985 and by 82% since 1960. The declines are spreading to previously stable areas and are accelerating. Significant declines have also occurred on the Kuril Islands , USSR. Causes of the population declines are unknown.

In 1995 the NMFS published a proposed rule to recognize two distinct populations of the Steller sea lions, a western population (west of 144 degrees west longitude) and an eastern population, generally east of Cape Suckling and including Southeast Alaska. Identification of the two populations was based on genetic analysis. The proposed rule further recommended that the western population be reclassified, due to the continued precipitous declines, from threatened to endangered.

The only Steller sea lion rookery in Southeast Alaska is on Forrester Island, 50 miles or more from the Cholmondeley Project Area.

Snake River Chinook (all stocks)

The Snake River Chinook are not known to inhabit the marine waters of the Tongass National Forest but may occur in the marine waters on the outside coast to the west of the Tongass. Because Chinook salmon are piscavores they may feed on fish which are dependent on the waters of the Tongass National Forest during some stage of their lives, or these prey species may be effected by the development of log transfer facilities. Additionally, Chinook salmon are harvested in the sport and subsistence fisheries which may utilize the Tongass National Forest for saltwater access.

Snake River Sockeye

The Snake River sockeye do not occur within the marine waters of the Tongass National Forest but may occur in the adjacent waters along the western, outside, boundary of the Tongass. British Columbia and Washington sockeye stocks normally occur south of Southeast Alaska sockeye stocks below the latitude 46 degrees (Burner, Robert L., *in* Pacific Salmon Life Histories, C. Croot and L. Marcolis, *eds., UBC Press, 1991).* Because sockeye salmon are primarily planktivores they are not generally taken in saltwater sport or subsistence harvest.

Assessment of Effects on the Population or Habitats of the Species In Relation to Proposed Actions of the Cholmondeley Timber Sale

Humpback Whale

The recovery plan for the humpback whale identified six known or potential categories of human impacts to these species: hunting, entrapment and entanglement in fishing gear, collisions with ships, acoustic disturbances, habitat degradation and competition for resources with humans.

National Forest management activities which may have an effect on whale habitats or populations generally fall into the categories of acoustic disturbances and habitat degradation. These management activities include: the development and use of log transfer facilities and their associated camps, the movement of log rafts from the transfer facility to mills, and the potential development of other docks and associated facilities for mining, recreation and other Forest uses and activities. Generally with the development and use of LTFs and other facilities for projects there is an increase in recreational boating in the immediate vicinity during the construction and use of the facilities.

Construction and operation of LTFs and other docking facilities are restricted to small, very localized areas of the marine environment. There are currently no LTFs in the Cholmondeley Project Area. Up to three LTFs are planned for the Cholmondeley Timber Sale.

Generally there is no reasonable potential to directly affect whales with these facilities. During the summer of 1989 there was a report of a humpback whale entangled in some cables from an inactive LTF site on the Stikine Area. To our knowledge this is the only direct effect incident related to LTFs.

Two potential effects of LTFs and other docking facilities and associated activities have been identified: 1) effects on whale prey species and 2) disturbances of whales by boat traffic associated with LTFs.

Effects on Prey

Nemoto (1970) noted that euphausiids and gregarious fish are the primary prey of humpback whales. Thirteen species of fish and 57 species of invertebrates were identified as prey species in Southeast Alaska. Humpbacks studied in Glacier Bay and Stephens Passage-Frederick Sound were found most frequently in areas of high prey concentrations (Wing and Krieger, 1983).

Construction and operation of all LTFs and similar facilities require U.S. Army Corps of Engineers and U.S. Environmental Protection Agency permits and State of Alaska Tidelands permits. The permitting process provides that construction and operation maintain water quality in the specific facility locations, and that marine circulation and flushing are maintained. All facilities must be in conformance with permit standards. No impacts to the marine environment that would affect whale prey species are anticipated.

Effects from Disturbance

Humpback whale response to nearby boating activity varies from no apparent response to pod dispersal, sounding, breaching, evasive underwater maneuvers and maintaining distance (Baker and Herman 1983, Baker et al., 1982). Disturbance by boat activity has been suggested as one of the possible causes of observed changes in whale distribution in Southeast Alaska. Direct pursuit of whales by boats and frequent changes in boat speed and direction appear to elicit avoidance behaviors more frequently than other types of boat traffic. However, whales may readily habituate to constant and familiar noise (Norris and Reeves 1978). Whales can commonly be found in some areas of Southeast Alaska that have considerable boat traffic; however, whether they have become habituated to the boat traffic or not has not been documented. Adverse effects from the current levels of boat traffic have not been documented as far as we know.

Two basic types of boat traffic would be associated with the LTFs: 1) log raft towing and 2) the recreational boating by workers. Log raft towing frequency would vary between camps, seasons and years; a general average may be about once a week during the working season (USFS 1989-94 Operating Period for the Ketchikan Pulp Company Long-Term Sale Area). Tugs would maintain relatively constant speeds and directions during log raft towing. Constant speed and direction elicit less avoidance behavior from whales than other types of boating activity. Log raft lowing routes are generally well established and the adverse effects from log raft towing have not been documented.

Recreational boating activity would vary between seasons, years and camps of different sizes. This activity would be concentrated near the LTF sites, other docking facilities and camps. It is estimated that most of the recreational boating would occur within a few miles of the site, few trips would be over 10 miles and activity greater than 30 miles from the site would be negligible. This boating would involve frequent changes in speed and direction and may include some small amount of whale pursuit. The effect of such recreational boating on whales would depend on many factors such as the size of the bay, depth of the water, number of boats, and individual behavior responses of the whales. At the present time there is no way to quantify these possible effects.

Forest-Wide Standards and Guidelines have been developed for all Forest Service permitted or approved activities, to minimize or eliminate any adverse impacts on humpback whales.

The amount of human activity in the marine environment associated with Forest management activities is the only a fraction of the total amount of human activity occurring there. Some of the other activities include commercial fishing, sport fishing, subsistence, tourism and mariculture. The Forest Service does not regulate many of these activities. The NMFS is currently proposing regulations for how close humans can approach whales. The purpose of such regulations is to reduce the disturbance to whales from activities such as whale pursuit. Such regulations would also reduce the indirect disturbance effects discussed above.

Based upon implementation of these Forest-wide management Standards and Guidelines, national forest management activities are not likely to directly or indirectly adversely effect humpback whales.

Steller Sea Lion

The NMFS provides a summary of factors affecting the Steller sea lion (NMFS 1990, 1993). These factors include: reductions in the availability of food resources (especially pollock, which is the most important prey species of the sea lion); commercial harvests of the sea lion pups; subsistence harvests of sea lions; harvests for public display and scientific research purposes; predation by sharks, killer whales and brown bears; disease; the inadequacy of existing regulatory mechanisms regarding quotas on the incidental harvesting of sea lion during commercial fishing operations; other natural or man-made factors such as incidences of fisherman shooting adult sea lions at rookeries, haulout sites, and in the water near boats. None of these factors are regulated or fall under the jurisdiction of the Forest Service.

Southeast Alaska sea lion populations have not declined to the extent of other populations. Harassment or displacement of sea lions from their preferred habitats by human activities such as boating, recreation, aircraft, log transfer facilities, log raft towing, etc. is a concern with regard to long-term conservation of the sea lion in Southeast Alaska. Forest-wide Standards and Guidelines direct the Forest Service to prevent or reduce potential harassment of sea lions and other marine mammals due to activities carried out by or under the jurisdiction of the Forest Service. These Standards and Guidelines are listed in Chapter 4 of the Forest Plan.

Based on the implementation of these Standards and Guidelines, national forest management activities are not likely to directly or indirectly adversely affect the Steller sea lion.

Salmon

The Forest Service has no authority over the direct taking of salmon. This responsibility rests with the State of Alaska, Board of Fisheries and the Department of Fish and Game. As a land management agency the Forest Service may indirectly influence the take of fish, both on and adjacent to national forest land. Indirect take may occur as a result of modification of habitat or improving the opportunity to harvest salmon. Examples of the latter include the development of roads, boat launches, saltwater anchorages, cabin construction, special use permits for lodges, guides and outfitters and logging camp development for the purpose of timber harvest. The following analysis considers the potential opportunity for indirect take of the Snake River sockeye salmon (endangered), Snake River spring/summer Chinook (threatened) and the Snake River fall Chinook salmon (threatened).

Snake River Chinook

Aquatic habitat protection measures have been designed to provide a natural range of habitat conditions in the waters of the Tongass National Forest (Riparian Forest-wide Standards and Guidelines) and have been developed to reduce or eliminate the likelihood or contribution to the degradation of freshwater habitats. Chinook prey species, such as members of the Pacific smelt family and other Pacific salmon are not anticipated to be negatively impacted. Log transfer facilities could disrupt the natural ecology of some prey species in very limited areas. The small area impacted, less than 0.1 % of the Tongass shoreline, is not considered to be significant habitat and would not measurably impact the Chinook prey base.

The Tongass National Forest Land Management Plan does not schedule any developments that measurably increase the access or opportunity to harvest Snake River Chinook salmon by sport or subsistence fisheries. Additionally it is likely that such projects that could be developed in the future

such as roads, boat launches, saltwater anchorages, cabins, special use permits for lodges, guides and outfitters, and logging camp development for the purpose of timber harvest would have no measurable effect on the Chinook salmon.

Snake River Sockeye

Due to both the lack of presence in the Tongass National Forest habitats and the lack of availability to sport and subsistence fisheries accessed through the Forest, revision of Tongass National Forest Land Management will not likely adversely affect the Snake River sockeye salmon.

The management of the Tongass National Forest has no direct effect on the take of the Snake River sockeye salmon, the Snake River spring/summer or fall Chinook salmon. There is only a very limited relationship between the life history of these salmon and the management of the terrestrial habitats of the Tongass National Forest.

Determination

Based upon the analysis presented, the Cholmondeley Project will not likely adversely affect the humpback whale, Steller sea lion, Snake River sockeye salmon, or the Snake River Chinook (all stocks) or their habitats.

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D Appendix

Documentation of Correspondence with Other Agencies

Sept. 1, 1987: Forest Service letter to NMFS requesting list of T & E species.

Sept. 11, 1987: Reply from NMFS with list of T & E species.

Feb. 6, 1987: State of Alaska endangered species list.

Aug. 15, 1989: Phone conversation with NMFS requesting information and data for whales and other marine mammals.

April 2, 1990: Phone conversation with NMFS about the status of recovery plans for whales and designation of critical habitat.

April 5, 1990: NMFS publishes in the Federal Register emergency listing of the Steller sea lion as a threatened species.

May 31, 1990: Meeting with NMFS about the emergency listing of the Steller sea lion as a threatened species; also discussed guidelines/regulations being developed by NMFS on minimum approach distances.

Aug. 22, 1990: Biological Assessment transmitted to NMFS and ADF&G for their review.

Aug. 30, 1990: Phone conversation with NMFS clarifying portions of the Biological Assessment.

Sept. 4, 1990: Reply from NMFS on their review of the Biological Assessment.

Sept. 20, 1990: Letter to NMFS thanking them for their review of the Biological Assessment.

Sept. 25, 1990: Reply from ADF&G on their review of the Biological Assessment.

Dec. 4, 1990: NMFS publishes final rule in Federal Register listing the Steller sea lion as a threatened species.

April 8, 1992: Phone conversation with NMFS about the status of recovery plans for the Steller sea lion and whales and the proposed regulations for approaching marine mammals.

Sept. 11, 1992: Letter to NMFS requesting a list of species that must be considered for Section 7 ESA consultation for TLMP Revision Final EIS.

Sept. 25, 1992: Letter from NMFS Dr. Zimmerman) to TLMP Planning Team (Chris Iverson) identifying species listed under the ESA that should be considered in the Biological Assessment for the Tongass Land Management Plan Revision.

Cholmondeley Timber Sale

Biological Assessment
for the
American Peregrine Falcon
for the Tongass National Forest
May 2000

Prepared By: Marla Dillman
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Approved By: _____ Date: _____
John M. Hannon
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Biological Assessment

Cholmondeley Timber Sale

This Biological Assessment (BA) was prepared for the Cholmondeley Timber Sale as required by Section 7 of the Endangered Species Act (ESA) as amended and the USDA Forest Service threatened, endangered, and sensitive plant and animal species policy (FSM 2670). This document examines the potential impacts of the Cholmondeley Timber Sale on the American Peregrine falcon. This falcon is primarily associated with interior Alaska, where it nests, breeds and rears its young. The American peregrine falcon is highly migratory, wintering as far south as Argentina. This species of falcon only occurs in Southeast Alaska during the migration period, between its wintering habitat in South American and the interior of Alaska where it spends the summer. Population numbers are on the increase (Ambrose et al., 1988). The U.S. Fish and Wildlife Service (USFWS), made a proposal in August 1998 to remove the peregrine falcon from the list of threatened and endangered species. The comment period was extended to January 23, 1999, and after reviewing any additional data the USFWS will make a final determination on the status of the peregrine falcon. If the species is removed from the threatened and endangered list the USFWS still requires that the species be monitored for at least the next five years. The Arctic peregrine falcon was de-listed in 1994.

Identification of Endangered and Threatened species and/or Critical Habitats for Such Species Within the Project Area.

In a letter dated August 28, 1996, the USFWS identified the American peregrine falcon *(Falco peregrinus anatum*) as the only listed species that may occur in the Tongass National Forest Project Area. This endangered species is the only one that is considered in this Biological Assessment for the purposes of Section 7 consultation requirements pursuant to the Endangered Species Act.

Common Name	Scientific Name	ESA Status
American Peregrine Falcon	*Falco peregrinus anatum*	Endangered

Overview of Species Distributions, Populations and Habitats.

The American peregrine falcon is primarily associated with the interior of Alaska for breeding, nesting and rearing of young; it is a highly migratory species wintering as far south as Argentina (Ambrose et al., 1998). It occurs in Southeast Alaska only during the migration periods to and from wintering and nesting grounds. Population numbers in Alaska are continuing to increase (ADF&G letter dated February 6, 1987, Ambrose et al., 1988). The USFWS is considering delisting the American peregrine falcon; reproduction is increasing and populations are up three-fold (minutes of an Interagency Wildlife Technical Committee Meeting of March 29, 1991).

Assessment of Effects on the Population or Habitats of the Species In Relation to Proposed Actions of the Cholmondeley Timber Sale

Peregrine Falcons

The primary reason for the past declines in peregrine falcon populations was the proliferation of organochlorine pesticides, especially DDT and its principle metabolite DDE (Ratcliff, 1969; Peskall, 1976; Cade, et al., 1971; Peskall and Kiff, 1979; USFWS, 1982). No organochloride pesticides are authorized for use on the Tongass National Forest.

The American peregrine falcon subspecies may occur on the Tongass National Forest within the Cholmondeley Project Area as a transient, primarily during seasonal migration periods. During migration, the availability and abundance of prey species will most likely be the primary habitat factor affecting the peregrine falcons. In coastal areas of Washington, the primary prey species for the peregrine falcon were shorebirds, waterfowl species, and passerines (Anderson and Debruyn, 1979; Anderson, et al., 1980). It is assumed that the food sources would be similar for coastal Alaska.

Peregrine falcons forage over open sites such as bodies of water, marshes, grasslands, shorelines and over wooded area. Peregrines attack flying prey from above or by chasing them. Although they forage over wide areas, they also have preferred foraging sites (White, 1974).

Actual migration routes and patterns, and foraging areas have not been identified in Southeast Alaska.

Forest-wide Standards and Guidelines have been developed for protecting seabird rookeries and waterfowl concentration areas (Forest Plan, Chapter 4). A wide variety of passerine birds will be available from a wide variety of open and forested communities under all alternatives. Adverse effects on American falcon populations or their habitats are not anticipated with any management activities associated with the Cholmondeley Project.

Relationship with other Agencies and Plans

The USFWS has responsibility for the threatened and endangered species of peregrine falcons. Recovery Plans have been developed for the Pacific States peregrine falcon populations but do not include Alaska (USFWS, 1982).

Determination

Based on this analysis the Cholmondeley Project will not likely adversely affect the American peregrine falcon.

In addition, formal and informal consultation (as directed by the Endangered Species Act, as amended, CFR 17.7, and Forest Service Manual 2670) are used with the USFWS on all projects within areas thought to be used by peregrine falcons. Forest-wide Standards and Guidelines for threatened and endangered species (Forest Plan, Chapter 4) direct all projects to follow requirements of the Endangered Species Act and Forest Service Policy (FSM 2670).

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D Appendix

Cholmondeley Timber Sale

Biological Assessment and Biological Evaluation

Threatened, Endangered, and Sensitive Species

May 2000

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Biological Assessment and Biological Evaluation

Cholmondeley Timber Sale

This combined Biological Assessment (BA) and Biological Evaluation (BE) was prepared for the Cholmondeley Timber Sale as required by Section 7 of the Endangered Species Act (ESA) as amended and the USDA Forest Service threatened, endangered, and sensitive plant and animal species policy (FSM 2670). This document describes the occurrence of and project effects on species that are federally listed or proposed for threatened or endangered status. This document also serves as a BE by including equivalent information on Forest Service sensitive species. The BE is not required under ESA, but is required by the Forest Service for all internal programs and activities (FSM 2672.4).

Identification of Endangered and Threatened species and/or Critical Habitats for Such Species Within the Project Area

Federal Threatened and Endangered Species

Threatened and endangered species potentially occurring in the project area were identified through consultation with the US Fish and Wildlife Service and the National Marine Fisheries Service. Consultation correspondences will be located in the Cholmondeley Project Planning Record. Table 1 lists the threatened and endangered species that may occur in or near the project area.

Table 1. Threatened and Endangered Species that may occur in or near the Cholmondeley Project Area.

Common Name	Scientific Name	ESA Status	Summary of BA/BE Finding
Humpback whale	*Megaptera novaeangliae*	Endangered	No effect
Steller sea lion	*Eumetopias jubatus*	Threatened	No effect
Snake River sockeye salmon	*Onchorhynchus nerka*	Endangered	No effect
Snake River spring/summer Chinook salmon	*Onchorhynchus tshawytscha*	Threatened	No effect
Snake River fall Chinook salmon	*Onchorhynchus tshawytscha*	Threatened	No effect
American peregrine falcon	*Falco peregrinus anatum*	Endangered	No effect

Forest Service Sensitive species

The Forest Service has identified sensitive plant and animal species that could potentially occur in or near the project. Table 2 lists sensitive species that may occur in the Cholmondeley Project Area.

Table 2. Alaska Region Sensitive Species that may occur in the Cholmondeley Project Area.

Common Name	Scientific Name	Summary of BA/BE Finding
Trumpeter swan	*Cygnus buccinator*	Not likely to adversely affect
Queen Charlotte goshawk	*Accipiter gentilis laingi*	May affect individuals, not likely to adversely affect population viability
Osprey	*Pandion haliaetus*	No effect
Pealeís peregrine falcon	*Falco peregrinus pealei*	No effect
Goose-grass sedge	*Carex lenticularis* var. *dolia*	No effect
Edible thistle	*Cirsium edule*	No effect
Davy mannagrass	*Glyceria leptoctachya*	No effect
Wright filmy fern	*Hymenophyllum wrightii*	May affect individuals, not likely to adversely affect population viability
Truncate quillwort	*Isoetes truncata*	No effect
Calder lovage	*Ligusticum calderi*	No effect
Choris bog orchid	*Platanthera chorisiana*	This species has been removed from the sensitive plant list.
Bog orchid	*Platanthera gracilis*	No effect
Loose-flowered bluegrass	*Poa laxiflora*	May affect individuals, not likely to adversely affect population viability
Straight-beak buttercup	*Ranunculus orthorhynchus* var. *alaschensis*	This species has been removed from the sensitive plant list.
Queen Charlotte butterweed	*Senecio moresbiensis*	Not likely to adversely affect

Other Species

The U.S. Fish and Wildlife Service and the Forest Service have identified the following species as ones in which they are interested. These species are not currently formally listed. The information on these species is provided to aid the Fish and Wildlife Service in their efforts to track these species. The one species that continues to be an issue is the Alexander Archipelago wolf. The wolf is not discussed here in the BE but is covered extensively in the wildlife section of Chapter 3 of this EIS.

Field Surveys

BOTANICAL SURVEYS

Field assessment for the Cholmondeley Project Area occurred in 1997. A Forest Service botanist spent eleven days on the ground surveying the Cholmondeley Project Area. Many of the field personnel had knowledge of plants as well and were equipped with sensitive plant identification cards and asked to report any sensitive plants seen during the course of other duties.

Surveys in 1997 followed the "Inventory Protocols for Sensitive and Rare Plants for the Ketchikan Area." The protocol calls for use of the "Intuitive Controlled Meander" survey method, the standard method for botanical surveys on national forest lands. The protocol also states that botanists "will survey at least 25% of the harvest unit pool, plus 75% of the segments of potential roads to be constructed outside of the units for timber sale assessments." In 1997, a botanist surveyed 11 of 46 proposed harvest units (23.9%) and 3.75 miles of road, out of a total of 33.44 miles (11.2%). The 23.9% was very close to the required 25%. The road surveys, however, fell well short of the requirement: 11.2% surveyed instead of 75%. This was due largely to the fact that the road locations were not flagged in at the time of the surveys. The detailed methods and results of botanical surveys, along with maps of the transect routes, can be found in the Planning Record (Phyllis A. Woolwine, October 1997 report).

During pre-field review, units and roads were selected for surveying according to two criteria. Units and roads were prioritized based on their probability for harvest. Aerial photos were then examined for high-likelihood sensitive plant habitats in and adjacent to the units and roads.

GOSHAWK SURVEYS

The objective of goshawk surveys in the project area was to locate goshawk nest sites. Knowledge of nest site locations allows goshawks to receive more accurate consideration during project alternative development and analyses. Standards and Guidelines will be applied to any discovered nests.

Goshawk surveys followed the Alaska Region Goshawk Inventory Protocol first issued June 24, 1992. In the summer of 1997, a combination of survey methods was used. The chances of observing a goshawk were increased if more time was spent sitting at an overlook and observing an area of good habitat. This technique was used in conjunction with the traditional method of broadcasting recorded goshawk calls while walking through units and other habitat. Although these inventory techniques are the best currently available, there is still a high likelihood that nests were missed even in the stands (units) which were walked. We suspect that nests may not be found, even if surveys are conducted close to a nest site.

Broadcast and overlook surveys were completed on 75 points in the Cholmondeley Project Area in 1997. Of the 45 potential units, 39 (87%) contained at least one broadcast or overlook station. A total of 7,610 acres were surveyed. Field crews found no goshawk nests and had no audio detections. Plucked feathers were found at two different locations in the Sunny Creek watershed but these areas were repeatedly surveyed with no detections.

INCIDENTAL OBSERVATIONS

There are a number of other species potentially in the project area about which we wanted to know more information, but did not feel species-specific surveys were justified or cost effective. Some species have Forest Plan Standards and Guidelines while others are U.S. Fish and Wildlife Service Species of Concern or Region 10 sensitive species.

The objectives of recording incidental observations were:

1) To be able to update the existing database (for example: trumpeter swans, marine mammal haulouts, etc.)

2) To document key sites, such as dens or nests, that were discovered within the project area.

3) To supplement data collected during protocol surveys.

We encouraged all field-going personnel to report wildlife observations through the use of standard wildlife observation cards and discussions with wildlife biologists. Listed below are the species that we encouraged people to report immediately so biologists could follow up on the reports as soon as possible.

Osprey	Great blue heron rookeries
Goshawk	Peregrine falcons
Marbled murrelet eggs or nests	Spotted frogs
Large (12" - 36") stick nests (not eagles)	

Listed below are additional species we encouraged all crews to report. Timeliness of the report was less critical for these species. We did no follow up visits for most of these observations.

Trumpeter swans	Whales
Harlequin ducks	Wolf dens, sightings, or howling
Canada geese	Bear dens or concentrations
Sandhill cranes	Band-tailed pigeons
Olive-sided flycatcher	Bald eagle nests

This method of field survey is useful in documenting the presence of a species, but does not document the absence of a species or the density of a species. Many undiscovered individuals or nests can occur in the area.

Threatened and Endangered Species Assessments

Humpback Whale (*Megaptera novaeangliae*)

Humpback whales are the most abundant of the seven species of endangered whales that occur in Southeast Alaska waters. As a result of the humpback being the most abundant of the species, most of the information and data for all whales in Southeast Alaska is associated with it. The other seven species of whales are either present only seasonally as they migrate along the outer coastal areas, or are only occasionally found in the inside coastal waters of Southeast Alaska. An eighth species, the gray whale, was delisted effective June 16, 1994. The humpback population in the North Pacific is estimated to be about 1,200, which is estimated to be about 8 percent of the prewhaling population. These whales are regularly sighted in the Inside Passage and coastal waters of the Southeast Alaska panhandle from Yakutat Bay south to Queen Charlotte Sound. Humpback whales feed in Southeast Alaska waters from about May through December, although they have been seen in every month of the year. Peak numbers of whales are usually found in nearshore waters during late August and September, but substantial numbers usually remain until early winter. Baker et al. (1985) estimate that 300-350 humpback whales inhabit Southeast Alaska during the summer and fall.

The following discussion and analysis is primarily based on humpback whales, but is assumed to be applicable to the other species of whales.

The local distribution of humpbacks in Southeast Alaska appears to be correlated with the density and seasonal availability of prey, particularly herring (*Clupea harengus*) and *euphausiids*. Important feeding areas include Glacier Bay and adjacent portions of Icy Straight, Stephens Passage/Frederick Sound, Seymour Canal and Sitka Sound. Glacier Bay and Icy Straight appear to be an important feeding area early in the season, when whales prey heavily on herring and other small, schooling fishes. Frederick Sound is important later in summer, when whales feed on swarming *euphausiids*. During autumn and early winter, humpbacks move out of the sound to areas where herring are abundant, particularly Seymour Canal. Other areas of Southeast Alaska may also be important for humpbacks and need to be evaluated. These areas include: Cape Fairweather, Lynn Canal, Sumner Strait, Dixon Entrance, the west coast of Prince of Wales Island, and offshore banks such as the Fairweather Grounds.

Because the humpback inhabits shallow coastal areas, it is increasingly exposed to human activity. Consequently, these whales may be more susceptible to confrontational disturbance, displacement, and loss of habitat from environmental degradation than some other whale species. Humpbacks summering in Southeast Alaska have been linked to three different wintering areas: Mexico, Hawaii, and Japan.

The recovery plans for the humpback whale identified six known or potential categories of human impacts to these species: hunting, entrapment and entanglement in fishing gear, collisions with ships, acoustic disturbance, habitat degradation, and competition for resources with humans.

National Forest management activities that may have an effect on whale habitats or populations generally fall into the categories of acoustic disturbance and habitat degradation. These management activities include: the development and use of log transfer facilities (LTFs) and their associated camps, the movement of log rafts from log transfer facilities to mills, and the potential development of other docks and associated facilities for mining, recreation, and other forest uses and activities. Generally, with the development and use of LTFs and other docking facilities for projects, there is an

associated increase in recreational boating in the immediate vicinity during the construction and use of the facilities.

Construction and operation of LTFs and other docking facilities are restricted to small, very localized areas of the marine environment. There are currently no LTFs in the Cholmondeley Project Area, but three are planned in the Cholmondeley DEIS: one each in Sunny Cove, Clover Bay and McKenzie Inlet.

There is little potential to directly affect whales with these facilities. During the summer of 1989, there was a report of a humpback whale entangled in some cables from an inactive LTF site on the Stikine Area. This is the only known direct incident related to LTFs on whales.

Two potential indirect effects of LTFs and other docking facilities and associated activities have been identified: 1) effects on whale prey species, and 2) disturbances of whales by boat traffic associated with LTFs.

Effects on Prey

Nemoto (1970) noted that *euphausiids* and gregarious fish are the primary prey of humpbacks. Thirteen species of fish and 57 species of invertebrates have been identified as humpback whale prey in Southeast Alaska. Humpbacks studied in Glacier Bay and Stephens Passage-Frederick Sound were found most frequently in areas of high prey density (Wing and Krieger 1983).

Construction and operation of all LTFs and similar facilities require U.S. Army Corps of Engineer and U.S. Environmental Protection Agency permits, and State of Alaska tideland permits. The permitting process provides that construction and operation maintain water quality in the specific facility locations, and that marine circulation and flushing are maintained. All facilities must be in conformance with permit standards. Although the effects may vary locally, the major effect of leachates (i.e. terpene, alpha-conindentric acid, alpha-conindentrin, hydroxymatairesinol, linoletic acid, and dehydroabientic acid) from stored log rafts, is upon invertebrates. Crustaceans, shrimp, and crab larvae seem especially sensitive (Pease 1973, Buchanan and Tate 1976). EPA measuring techniques may be required to monitor the LC50 levels at each LTF (Peltier and Weber 1985) in order to insure impacts are limited to the approved "zone of deposit." A local increase in the herring and herring egg fishery could also impact this food item.

Effects from Disturbance

Humpback whale response to nearby boating activity varies from no apparent response to pod dispersal, sounding, breaching, evasive underwater maneuvers, and maintaining distance (Baker and Herman 1983, Baker et. al. 1982). Disturbance by boat activity has been suggested as one of the possible causes of observed changes in whale distribution in Southeast Alaska. Direct pursuit of whales by boats, and frequent changes in boat speed and direction, appear to elicit avoidance behaviors more frequently than other types of boat traffic. However, whales may readily habituate to constant and familiar noise (Norris and Reeves 1978). Whales can be commonly found in some areas of Southeast Alaska that have considerable boat traffic. Whether they are habituated to boat traffic or not has yet to be documented. Adverse effects, if any, from current levels of boat traffic need to be documented as well.

Two basic types of boat activity associated with LTFs are log raft towing and recreational boating by workers. Log raft towing frequency would vary between camps, seasons, and years, with an average of about once a week during the working season (U.S.D.A. Forest

Service 1989). Tug boats maintain relatively constant speeds and directions during log raft towing. Constant speed and direction seem to elicit less avoidance behavior from whales than other types of boating activity. Log raft towing routes are generally well established, but adverse effects from log raft towing have not been documented.

Recreational boating activity by camp residents would vary between seasons, years, and camp size. This activity would be concentrated near LTF sites, other docking facilities, and camps. It is estimated that most recreational boating would occur within a few miles of the site, few trips would be made over 10 miles, and activity greater than 30 miles from a site would be negligible. This boating would involve frequent changes in speed and direction and may include some small amount of whale pursuit, if the whales are within sight of the camp or an occupied boat. The effect of such recreational activity on whales would depend on many factors such as size of the bay, depth of the waters in the bay, number of boats, individual behavior responses of the whales, etc. At the present time, there is not a quantifiable way to estimate these possible effects.

The following Forest-wide Standards and Guidelines have been developed for the Tongass Land Management Plan Revision (1997) and are incorporated into the Cholmondeley EIS by reference:

1. Provide for the protection and maintenance of whale habitats.

2. Ensure that Forest Service permitted or approved activities are conducted in a manner consistent with the Marine Mammal Protection Act, the Endangered Species Act, and National Marine Fisheries Service regulations for approaching whales, dolphins, and porpoise. "Taking" of whales is prohibited; "taking" includes harassing or pursuing or attempting any such activity.

No adverse effects on whales from implementation of Forest management activities are anticipated. Indirect effects may be associated with possible increased boating activity, but compliance with Forest Service and NMFS Standards and Guidelines should partially mitigate any adverse effects on whales resulting from the proposed timber sale alternatives. The Forest Service has no control over the routes taken by tugboats with log rafts, nor does the Forest Service control recreational boating activities.

Steller Sea Lion (***Eumetopias jubata***)

The Steller (northern) sea lion ranges from Hokkaido, Japan, through the Kuril Islands and Okhotsk Sea, Aleutian Islands and central Bering Sea, Gulf of Alaska, Southeast Alaska, and south to central California. The centers of abundance and distribution are the Gulf of Alaska and the Aleutian Islands, respectively. In 1990, because of a population decline observed over the last 31 years (primarily in the former Soviet Union, Gulf of Alaska, and Aleutian Islands), the NMFS listed the Steller sea lion as a threatened species throughout its range. The number of sea lions observed on certain rookeries from Kenai Peninsula to Kiska Island declined by 63 percent since 1985 and by 82 percent since 1960. Significant declines have also occurred on the Kuril Islands.

There is sufficient information to consider animals in different geographic regions as separate populations. The Stellar sea lion populations are currently divided into two distinct subpopulations. The western population, which ranges west of Cape Suckling, is listed as endangered, and the eastern population which occurs in Southeast Alaska is listed as threatened (NOAA and NMFS; 50 CFR parts 222 and 227; effective date 4 June 1997).

Information on population trends in Southeast Alaska is sketchy, but what data does exist suggests that Southeast populations are stable or perhaps slightly decreasing.

The cause of overall population declines has not been confirmed. However, incidental mortality of sea lions in commercial fishing gear, shooting by fishermen, and reduced prey species due to commercial fishing operations, have probably contributed significantly to declines (Reeves et al. 1992).

When the sea lion was given emergency listing as a threatened species in the Federal Register (April 5, 1990), buffer zones restricting human activities were established around rookeries west of 150 degrees west longitude (this does not include Southeast Alaska). The closest Steller sea lion rookery to the Cholmondeley Project Area is on Forrester Island, approximately 50 miles to the west. A sea lion haulout, used for sunning and resting, occurs on Grindall Island, near the south tip of Kasaan Peninsula (about 5 miles northeast of the Project Area). This area is not designated as critical habitat. A recovery team has prepared a final recovery plan for the sea lion (effective December 1992).

Important food resources include walleye pollock, salmon, eulachon, and cephalopod mollusks. Steller sea lions forage predominantly in nearshore areas and over the continental shelf.

The NMFS provides a summary of factors affecting the Steller sea lion (Federal Register April 5, 1991). These factors include reductions in the availability of food resources, especially pollock, which is the most important prey species for sea lions; commercial harvests of sea lion pups; harvests for subsistence and for public display and scientific research purposes; predation by sharks, killer whales, and brown bear; disease; the inadequacy of existing regulations regarding quotas on the incidental harvesting of sea lions during commercial fishing operations; other natural or human incidences such as shooting adult sea lions at rookeries, haulout sites, and in the water near boats. None of these factors are regulated by or within the jurisdiction of the Forest Service.

Southeast Alaska populations of Steller sea lions have not declined to the extent that other populations have. Harassment or displacement of sea lions from preferred habitats by human activities such as boating, recreation, aircraft, log transfer facilities, log raft towing, etc., is a concern with regard to long-term conservation of the sea lion in Southeast Alaska. Forest-wide Standards and Guidelines direct the Forest Service to prevent and/or reduce potential harassment of sea lions and other marine mammals due to activities carried out by or under the jurisdiction of the Forest Service, and these will be incorporated by reference into the Cholmondeley EIS from the Tongass Land Management Revision (1997). These Forest-wide Standards and Guidelines are as follows:

1. Protect Steller sea lion habitats.

2. Ensure that Forest Service permitted or approved activities are conducted in a manner consistent with the Marine Mammal Protection Act, the Endangered Species Act, and National Marine Fisheries Service guidelines for approaching seals and sea lions. Consult with the appropriate agency for identification of critical timing events, such as molting, parturition, etc., and recommended distances to avoid disturbances. "Taking" of marine mammals is prohibited; taking includes harassment, pursuit, or attempting any such activity.

3. Locate facilities, camps, LTFs, campgrounds, and other developments one mile from known haulouts, and, farther away, if the development is large.

4. Cooperate with State and other Federal agencies to develop sites and opportunities for the safe viewing and observation of marine mammals by the public. Maintain a public education program explaining Forest management activities related to marine mammals in cooperation with State and other Federal agencies.

No direct effects on sea lions from Forest management activities are anticipated. Indirect effects may be associated with possible increased boating activity, but compliance with these Standards and Guidelines should mitigate any adverse effects on sea lion populations or their habitats for any of the alternatives

American Peregrine Falcon (***Falco peregrinus anatum***)

The American peregrine falcon is primarily associated with interior Alaska for breeding, nesting, and rearing of young. The falcon is highly migratory, wintering as far south as northern Argentina. The peregrine falcon occurs in Southeast Alaska during migration periods. Population numbers of the American peregrine falcon are on the increase (Ambrose, et al. 1988). In coastal areas of Washington, the primary prey for peregrine falcons is shorebirds and waterfowl species; passerines were also identified in the diet (Anderson and Debruyn 1979; Anderson et al. 1980).

The Tongass Land Management Plan (1997) contains Standards and Guidelines for protecting waterfowl and shorebird habitats. These Standards and Guidelines are incorporated into the Cholmondeley Project. Due to the fact that the project will not impact seabird rookeries or waterfowl concentrations, no adverse effects are anticipated from the project on American peregrine falcons.

Sensitive Species Evaluations

Trumpeter Swan (***Cygnus buccinator***)

The breeding range of the trumpeter swan is concentrated along the Alaska Gulf coast and other wetland areas in central and southern central Alaska (Bellrose 1980). There is no known trumpeter swan nesting pairs on the Craig Ranger District. Therefore, there are no concerns for conflicts between breeding trumpeter swans and the Cholmondeley Project. Swans have been reportedly seen in the summer on the lake south of Saltery Cove by the local residents. Swan surveys in the area by Forest Service biologists have not recorded any swans in the area, although the habitat is present. Forest Service swan surveys are done in the winter, but biologists have been in this area in the summer conducting other surveys and no swan sightings were recorded. If swans are seen within the project area, all Forest-wide Standards and Guidelines concerning swans will be applied.

Trumpeter swans breeding in Alaska winter along the Pacific Coast from the Alaska Peninsula south to the mouth of the Columbia River (Bellrose 1980). Each year, many swans pass through southern Southeast Alaska in the spring and fall as they migrate to and from their breeding grounds. Swans that spend the winter here usually move into areas of open water such as large lakes and estuaries once the weather turns cold. They usually arrive in the area around mid-October. Numbers increase as migration continues. Swans typically leave for their breeding area by mid-April.

The Cholmondeley Project incorporates the Forest-wide Standards and Guidelines for significant waterfowl areas, beach fringe and estuary fringe. Based on the above information, this project is not likely to adversely affect the overall swan population in Southeast Alaska.

Queen Charlotte Goshawk (*Accipiter gentilis laingi*)

The American Ornithologists Union (AOU) recognizes two subspecies of the northern goshawk in North America: *Accipiter gentilis atricapillus* and *A.g. laingi,* the Queen Charlotte goshawk (AOU 1957). Taverner (1940) first described the darker plumaged Queen Charlotte goshawk as a distinct race occurring in the coastal temperate rainforests of the Queen Charlotte Islands and Vancouver Island, British Columbia. Webster (1988) found that the Queen Charlotte goshawk occurred from Vancouver Island north to the Taku River near Juneau. The northern goshawk and Queen Charlotte goshawk are identified as Species of Concern throughout their ranges.

On May 9, 1994, the USFWS received a petition from the Southwest Center for Biological Diversity and numerous copetitioners to list the Queen Charlotte goshawk as endangered pursuant to the Endangered Species Act. On August 19, 1994, the USFWS found that the information presented by the petitioners together with the information in USFWS files was substantial and indicated that listing may be warranted. Therefore, a status review of the species was initiated. After seeking public comments and reviewing all the available information on the goshawk, a finding was issued June 28, 1995, that protection under the Endangered Species Act is not warranted at this time for the Queen Charlotte goshawk. Since that time the courts have directed the USFWS to reconsider their determination. The USFWS recently redetermined that the goshawk did not warrant listing, but this decision is also in the process of being appealed.

The goshawk is a wide-ranging forest raptor that generally occurs in low densities, from 2.4 pairs (Central Alaska, McGowan 1975) to 11.0 pairs (Arizona, Crocker-Bedford and Cheney 1988) per 100 square kilometers, although population densities in Southeast Alaska may be much lower (Crocker-Bedford 1992). The most recent estimates of the goshawk population in Southeast Alaska range from 100 to 381 pairs (USDA Forest Service 1991a; Crocker-Bedford 1994) and from 100 to 800 pairs (Alaska Interagency Goshawk Committee, Report of June 30, 1994).

The primary concern for goshawk population viability is habitat loss due to timber harvest. Recent results of studies within the range of the Queen Charlotte goshawk (ADF&G 1993, Titus et al. 1994), indicated a greater frequency of relocations of radio-tagged goshawks in mature and old-growth forest. Of 18 nest trees for which habitat attributes were characterized, 16 were in old growth and two were in second growth trees greater than 90 years of age. Of 661 radio relocations, over 90% were in habitat classified as volume class 4 or greater and 68% were in habitats classified as volume class 5 or greater (Titus et al. 1994).

Reynolds (1983) reported home ranges to be 2,000 to 3,200 hectares. These home ranges may include a mosaic of habitat types, with a strong preference for mature forest with flight space beneath the canopy (Reynolds 1989, USDA Forest Service 1990). Home range size is strongly dependent upon quality of the foraging habitat and prey availability (Kenward 1982). Titus et al. (1994) reported breeding period home ranges for 16 adult goshawks in Southeast Alaska as large as 19,613 hectares and year-round home ranges as large as 114,728 hectares.

A recent review of the Queen Charlotte goshawk summarized habitat use as follows (Crocker-Bedford 1994):

"Analyses of habitat use have shown similar results throughout the geographical range of the northern goshawk in the United States. Home ranges include stands of large trees for nesting, as well as for greater abundance of some prey. The higher canopy provided by large trees, along with sparser than normal shrubs and small trees, appears to facilitate goshawk flight and prey capture. Closed canopies appear to provide preferred microclimate in the nesting stand, increased productivity of some important prey species, and reduced competition and predation by open-forest raptors. A literature review indicated that goshawk densities tend to decrease with the amount of timber harvest, and that goshawks may sometimes be impacted by forest fragmentation.

ìIn Southeast Alaska 92 percent of the relocations on radio-tagged goshawks were in old-growth forests having over 8 mbf/ac. Old-growth having over 20 mbf/ac. was the most preferred."

Goshawks generally select forest stands with large trees on gentle slopes at lower elevations for nesting and foraging (Reynolds 1989, USDA Forest Service 1990). Foraging habitat is generally characterized by a greater diversity of age classes and structural characteristics (e.g., snags, woody debris) than nesting areas; foraging areas also comprise the largest percentage of goshawk home ranges (Reynolds et al. 1991).

Goshawk sensitivity to timber harvest resulted in management recommendations to protect nest site integrity (USDA Forest Service 1990, USDA Forest Service 1991a, USDA Forest Service Alaska Region 1992 and 1994). Other management recommendations recognized the importance of the foraging area within the post-fledging area (Kennedy 1989, Crocker-Bedford 1990, USDA Forest Service 1991a, and USDA Forest Service Alaska Region 1992 and 1994). There is now widespread recognition of the importance of most foraging habitat, including areas far from the nesting site (Reynolds 1989, USDA Forest Service 1990, Crocker-Bedford 1990, 1991, 1992, 1994a and 1995, Marshall 1992, Reynolds et al. 1991, USDA Forest Service Alaska Region 1994, Iverson et al. 1996).

The value of clearcut stands for goshawk nesting or foraging is very low. Landscapes with large portions of early seral forest reduce cumulative landscape habitat quality (Assessment of the Northern Goshawk for the TLMP Revision). Harvesting of the units in the Cholmondeley Project would increase the amount of early seral forest, thus reducing the cumulative landscape habitat quality.

Since 1992, more inventory effort has been spent to find goshawks than any other animal in Southeast Alaska. Twenty-one goshawk nest areas were documented in Southeast Alaska with activity between 1990 and 1993 (Titus et al. 1994). At least one nest site was located at 18 of these areas, including 8 active nests in 1993. In 1994, a total of 33 historic and current sites with at least one nest were documented; active nests were located at 21 of these sites (ADF&G 1994). Despite searches in new locales, and following radioed birds to 5 new sites in 1995, the number of known, occupied nest sites decreased from 21 to 10 between 1994 and 1995 (Iverson et al. 1996)

No known goshawk territories are located within the project area, although the habitat is present especially in the three main watersheds (Saltery, Monie, and Sunny). There have been reported goshawk sightings across the West Arm in the Cannery creek drainage. Prey remains were found in the Sunny creek watershed while conducting surveys in the area in the summer of 1997. Any goshawks not discovered prior to timber harvest may be

affected if the harvest units correspond to key stands of habitat. Any goshawk nest found prior to or during harvest will be protected utilizing the TLMP goshawk Standards and Guidelines. Although the buffers may be adequate if only 3% of the old growth of a drainage is harvested in any one decade (Iverson et al. 1996), the nest site will likely not be occupied long after timber harvesting if large amounts of harvest occur in the surrounding watersheds (Crocker-bedford 1990, 1991, 1994, and 1995; Patla 1991, Reynold et al. 1991, Marshall 1992, Woodbridge and Detrich 1994, Harward et al. 1995).

It is determined that this project may affect individual northern goshawks if timber harvest activities or roads correspond with goshawk nesting stands or important foraging habitats which have not been identified. This determination is based on the following factors:

- Goshawks are dependent on old-growth forest characteristics.
- Goshawks are sensitive to timber harvest, and habitat values in clearcut stands are generally very low.
- Harvesting of the units in the Cholmondeley Project would increase the amount of early seral forest, thus reducing the cumulative landscape habitat quality.

Mitigation: All units laid out for the Cholmondeley Project will follow the TLMP Forest-wide Standards and Guidelines. The Project will also follow the TLMP strategy for maintaining viable wildlife populations. It is assumed these strategies will be sufficient to maintain goshawk populations; therefore, the Cholmondeley Project is not likely to affect goshawk population viability, even if a nest should be found within the Project Area.

Osprey (***Pandion haliaetus***)

There are no known osprey nest locations on the Craig Ranger District. Nests are usually in broken-top spruce, either live or dead, or western hemlock snags. Osprey are usually found near water since their diet consists mainly of fish.

Osprey have been known to stop at some lakes on the District during migration. The numerous small lakes in the project area provide an opportunity for migrating osprey to rest and feed. A single osprey was observed in the project area in the area near Monie Lake in the summer of 1997 (30 September 1997, Hannon, J. and S. Farzan, per. comm.).

The Cholmondeley Project is not expected to affect nesting ospreys because no known nest sites occur in the project area, and availability of nesting and foraging areas do not appear to be a factor limiting population growth. In addition, minimal or no effect on osprey habitat is expected from project activities, because uncut buffers will be maintained near streams, lakes, and coastal areas. If nests are discovered in the project area, Standards and Guidelines outlined in the Forest Plan will be followed. Based on this information, the project is not expected to adversely affect osprey.

Peale's Peregrine Falcon (***Falco peregrinus pealei***)

The Pealeís subspecies of the peregrine falcon nests on the outer islands west of Prince of Wales Island. This species is not listed as endangered or threatened, but is covered by a provision of the "similarity of appearance" which broadens the scope of protection for all peregrine falcons. The nest distribution of this subspecies is closely associated with large seabird colonies, and seabirds are believed to be the major prey of the falcon.

Peregrine nest distribution is closely associated with large seabird colonies located on the outer coasts of nearby islands (USDA Forest Service 1991b). No seabird colonies or potential nesting cliffs exist in the project area. Based on this information, the project will not affect Pealeís peregrine falcons or their habitat.

Goose-grass Sedge (***Carex lenticularis* var. *dolia***)

This sedge is known to occur in the coastal mountains of Alaska and British Columbia and the Rocky Mountains from Jasper, B. C., south to Glacier National Park, Montana. Its range in Alaska is limited to the alpine areas of coastal South-central and Southeast Alaska and the Aleutian Islands. In Southeast Alaska it is known from sightings at Mendenhall Glacier, Bailey Bay and the Chickamin Glacier. Its habitat is wet alpine meadows and the edges of snowbeds.

No observations of this species were made during field reconnaissance of harvest units and roads. The field reconnaissance included surveys by cross-trained IDT members as well as 11 days by a FS botanist. This species is not known to occur in forested areas and, therefore, no effects are anticipated as a result of this project.

Recent taxonomic treatment of *Carex* has added *Carex enanderi* to this taxon. Consequently, this taxon is more common, but still rare (TLMP 1997).

Edible Thistle (***Cirsium edule***)

This regionally endemic thistle is distributed primarily along coastal Oregon, Washington, and British Columbia and barely reaches southernmost Southeast Alaska. In Southeast Alaska it is known from locations in Misty Fiords National Monument (TLMP FEIS 1997). It is not expected to occur in the project area. Its habitat is characterized as wet meadows and open woods along glacial streams.

No observations of this species were made during field reconnaissance, which included 11 days of plant surveys by a FS botanist as well as surveys by crossed-trained field personnel.

Since harvest activities generally avoid wet meadows and stream margins where this species would be expected to be found, no direct effects are anticipated from the project even if the species were to occur in the project area.

Davy Mannagrass (***Glyceria leptostachya***)

This grass species is distributed from Southeast Alaska to central California. Its distribution in Alaska is limited to central and southern Southeast Alaska. It is known to occur near Wrangell, Alaska and on Prince of Wales Island (Forest Service 1995). However, it is easily overlooked and may likely be more widespread in Southeast Alaska (USDA Forest Service 1994).

No populations of davy mannagrass were discovered within the project area during field reconnaissance, which included 11 days of surveys by a FS botanist. Because it grows in shallow fresh water and along stream and lake margins (TLMP 1997), TLMP Standards and Guidelines should protect its habitat from disturbance, should it happen to occur in the area. Therefore, no effects are anticipated from this project.

Wright Filmy Fern (***Hymenophyllum wrightii***)

This small fern species occurs in coastal areas of Southeast Alaska and British Columbia. Sightings have been documented in Alaska, but are limited to Biorka and Mitkof Islands (USDA Forest Service 1994). It is unknown if the species occurs in the project area. This species appears to prefer humid, shaded boulders, cliffs, tree trunks, and damp woods. In Alaska, it has been found in small populations on the base of trees and rock outcrops in damp woods.

Sensitive plant surveys included 11 days of field reconnaissance by a FS botanist but no observations of this species were documented for the project area. However, the habitat for the Wright filmy fern does occur within the Cholmondeley Project Area and, as a result, undetected specimens could be affected. This project may affect individuals, but is not likely to adversely affect population viability.

Truncate Quillwort (***Isoetes truncata***)

This rooted aquatic species is known from a few widely isolated populations on Vancouver Island and South-central Alaska on the Copper River Delta (USDA Forest Service 1994). It is unknown whether this species occurs in the project area. Truncate quillwort grows immersed in shallow water of lakes and ponds (TLMP 1997).

No observations of this species were made during the 1997 field reconnaissance, which included 11 days of plant surveys by a FS botanist as well as other trained field personnel. Due to its rooted aquatic nature, this species does not occur in forested areas where harvest and roading activities would be concentrated. Even if the species does exist in the project area, stream and lakeshore buffers, as well as wetland protections, should provide adequate protection for this species. Therefore, no direct effects are anticipated from this project.

Recent reevaluations of *Isoetes* x *truncata* reveal that the ones identified from the Sitka Ranger District were misidentifications of *Isoetes occidentalis*, which was not known to occur in Alaska. It is suspected to occur from Prince William Sound south through the Tongass National Forest. *Isoetes occidentalis* is not known to occur within the project area, but even if it does, the areas of its preferred habitat would be protected by the stream and lake buffers in the Forest Plan.

Calder's Lovage (***Ligusticum calderi***)

This plant species occurs in British Columbia, South-central and Southeast Alaska. Documented occurrences in Alaska are on Kodiak Island, Dall Island (just west of Prince of Wales Island) and on Bokan Mountain on Prince of Wales (Forest Service 1996 and 1998). These populations are in Pleistocene refugia on limestone substrate (USDA Forest Service 1994). It is unknown if this species occurs in the project area. Calderís lovage occurs on rocky cliffs, open boggy or rocky slopes, and the edges of coniferous forests. In Alaska, it is known from alpine meadow habitats and edges of subalpine mixed conifer forest, although the populations on Bokan Mountain extend down to an elevation of 50 feet.

No observations of this species were documented in the project area after 11 days of surveys by a FS botanist. Since Calderís lovage is not known to occur in the project area and its preferred habitats are areas generally not impacted by harvesting, no effects are anticipated from this project.

Choris Bog-Orchid (***Platanthera chorisiana***)

Choris bog-orchid (*Platanthera chorisiana)* is a small (6-12 cm tall), cryptic species of the orchid family (*Orchidaceae).* The Choris bog-orchid grows in bogs and muskegs at low to middle elevations. It can also be found in wet sites along streams or in moist forests (Pojar and MacKinnon 1994).

The Tongass National Forest approximates the middle range for Choris bog-orchids. Populations have been documented on the Ketchikan, Craig, and Thorne Bay Ranger Districts as well as Misty Fjords National Monument. Sites are known from the northern Tongass National Forest as well. A full summary of the sites occurring in these areas is currently not available.

On southern Prince of Wales Island, Choris bog-orchids are known from several areas on the Craig Ranger District. A number of sites for this species were documented in the project area during the 1997 field season. The Choris bog orchid was found at locations in or near units 614-001, 616-007, -008, -009, -011, -012, -017, -018, 675-029, -030, -and -462, as well as along or near roads #2170 and #2180.

On 11 May 1999, the Regional Forester signed a letter removing the Choris bog orchid from the Sensitive Plant species list. As a result of intensive surveys, numerous occurrences of this plant throughout its range were documented. The Alaska Native Heritage Program agrees that the plant is not extremely rare and they are no longer tracking its occurrences.

Bog Orchid (***Platanthera gracilis***)

This species of bog orchid is limited to a small geographic range in southernmost Southeast Alaska and adjacent British Columbia (USDA Forest Service 1994). Documented sightings have been made in Alaska near Pearse Canal and on Dall Island. It is unknown if this species occurs in the project area. No observations of this species were made during field reconnaissance, which included 11 days of plant surveys by a FS botanist. This plant occurs in wet open meadow habitat and is not known to occur in forested areas. Therefore, no effects are anticipated from harvest activities, even if the species should occur within the project area boundary.

Loose-flowered Bluegrass (*Poa laxiflora*)

The distribution of this grass species is scattered between Southeast Alaska and Oregon. Several sightings have been documented in Southeast Alaska near Hoonah, Sandborn Canal at Port Houghton, and Admiralty Island (USDA Forest Service 1994). Loose-flowered bluegrass is associated with moist, open, lowland woods and open-forest meadows. It is not known if this species occurs in the project area. No observations of this species were made during the 1997 field reconnaissance, which included 11 days of surveying by a FS botanist. However, undetected specimens could potentially be affected by harvest activities in open lowland woods and open-forest meadows. Therefore, this project may adversely affect loose-flowered bluegrass, but is not likely to cause a trend towards listing as threatened or endangered.

Straight-beak Buttercup (*Rununculus orthorhynchus* var. *alaschensis*)

This species of buttercup is distributed from coastal southern Southeast Alaska to adjacent British Columbia and Vancouver Island (USDA Forest Service 1994). It occurs in moist, open, lowland meadows and other moist, open habitats. Observations of this species were made during field reconnaissance of the Cholmondeley project. However, the population was located well outside of any unit boundary or road location and was within the 1,000-foot beach buffer. Direct effects due to the removal of timber or road construction on the Cholmondeley Project are not anticipated to be significant to this species as its preferred open, moist habitats are generally avoided for these purposes.

The most recent treatment of the genus *Ranunculus* does not recognize this variety as distinct from the more common *R. orthorhynchus* var. *orthorhyncus*. The variety *alaschensis* was considered a regional endemic ranging from the central panhandle south to Vancouver Island (TLMP 1997). On 11 May 1999, the Regional Forester signed a letter which removed the straight-beak buttercup from the Sensitive Plant species list. The treatment of the genus Ranunculus in the Flora of North America, Volume 3, realigns this variety to be synonymous with the more common *Ranunculus orthorhynchus* var. *orthorhynchus*. Therefore, *R. orthorhynchus* var. *alaschensis* is no longer recognized as the correct name for this entity. Because *R. orhtorhynchus* var. *orthorhynchus* is relatively common and wide ranging, it does not warrant sensitive designation.

Queen Charlotte Butterweed (*Senecio moresbiensis*)

This species of butterweed is limited to the Queen Charlotte Islands of British Columbia and to disjunct populations in southeastern Alaska and northwestern Vancouver Island (USDA Forest Service 1994). Occurrences have been documented in Alaska on Prince of Wales, Baker, Coronation, and Dall Islands. The Queen Charlotte butterweed occurs in shady, wet areas and bogs of montane to alpine habitats, to open rocky or boggy slopes, and in open rocky heath or grass communities (Douglas 1982 in USDA Forest Service 1994).

This species was observed during field reconnaissance for the project area. It was found in an area that was dominated by medium-tall sedge along the edge of a small bog. A population of Choris-bog orchids was also found in this wetland, as well as the uncommon *Botrychium multifidum* (leathery grape fern) and *Lycopus uniflorus* (northern bugleweed).

The population of Queen Charlotte butterweed that was discovered was within a unit boundary as well as in an area considered to be a high value wetland. The proposed road location also went through the high-value wetland habitat. Direct effects due to harvest activities may occur, but the preferred open, moist habitats of this species are generally avoided for timber harvest. Both the road and unit boundary locations have been moved to avoid impacting the high value wetland area as well as the population of *Senecio*. Therefore, this project is not likely to adversely affect the Queen Charlotte butterweed.

Determination of Effects

Potential and direct impacts to plants were from road building and harvest activity. Road building may represent the most intensive source of impact as harvest sites move from lower basin areas to upper slopes. Roads that access units or connect units will likely utilize important areas of suitable habitat (e.g. muskegs, mixed-conifer stands).

Other impacts may include changes in light regime, hydrology, soil conditions, edge effect, and other site factors that may be detrimental to those populationsí abilities to reproduce, disperse, or to remain viable at specific localities.

The consequence of adverse impacts to the Queen Charlotte butterweed due to project activities is moderate. This one population of the Queen Charlotte butterweed was the only location of the species found within the Cholmondeley Project Area.

Mitigation

Mitigation is necessary to lower the overall risk assessment. This can be achieved by avoiding potential and direct impacts to sensitive plant populations by delineating known areas out of proposed projects, using buffers and directional felling orders to protect plants and habitat, and moving or re-directing road locations. A USFS District Botanist or other qualified botanist shall be consulted regarding final placement of road locations and/or any other mitigation measures taken.

Discussion and Management Recommendations

Biological Evaluations and mitigation are often relied upon as environmental protection strategies. As part of the evaluation process, biologists are routinely asked to evaluate the effects of management actions on plants or animals. This evaluation often requires judgments about the viability of affected populations. Population viability analyses that are both comprehensive and scientifically sound require extensive ecological data. It has been suggested that a gross mismatch of scale between local management actions (e.g. timber sales) and geographically extensive ecological responses (e.g. species viability) reduces the reliability of environmental assessments (Ruggiero, 1993).

The Standards and Guidelines for sensitive species state that the biological evaluation (BE) will disclose the potential impacts of proposed activities on the sensitive species and will consider the direct, indirect, and cumulative effects of the proposed action. If the BE concludes that a project may have an adverse effect on the species or habitat, consult with the appropriate state and federal agencies to consider mitigation measures to reduce the effects. These measures include avoiding cumulative impacts that would contribute to further population or habitat declines and the possible need for federal listing (Forest Plan, Chapter 4, pages 89-90).

Monitoring study plots should be established at selected plant sites. Data collected from such sites can be useful in furthering our understanding of the natural history of these

species and tracking a species response to management activities and their long-term viability in the landscape.

If any undocumented sensitive plant species is located during the execution of this project all work shall halt until a USFS District Botanist or other qualified botanist can assess potential or direct impacts.

This project, with mitigation, is not likely to cause any sensitive plant species to trend toward Federal listing.

Other Species Assessments

As stated earlier the USFWS is no longer tracking the species formerly listed as "species of concern". As a result the Forest Service is no longer including discussion of these species in the documentation. The one exception to this is the Alexander Archipelago wolf. The wolf is discussed in the Wildlife/TES section in Chapter 3 of this document.

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Appendix E

LTF Guide and Evaluation

APPENDIX E

EVALUATION OF LOG TRANSFER FACILITIES

Using 404(b)(1) Guidelines of the Clean Water Act

CHOLMONDELEY PROJECT

USDA Forest Service
Tongass National Forest

Nov. 1, 1998

E Appendix

EVALUATION OF LOG TRANSFER FACILITIES
Using 404(b)(1) Guidelines of the Clean Water Act.

Guidelines governing siting, construction, operation and monitoring of log transfer facilities (LTF) under 40 CFR 230.12(a)(3) read as follows:

> V. Log Transfer Facilities Siting, Construction, Operation, and Monitoring A. Site log transfer facilities in locations which will best avoid or minimize potential impacts on water quality, aquatic habitat and other resources. During site analysis, cooperate with State and Federal agencies per stipulations in Memoranda of Understanding or cooperative agreements to assemble required data and evaluate alternatives.
>
> Evaluate alternatives using the 404(b)(1) guidelines to determine if "(i) There is a practicable alternative to the proposed discharge that would have less adverse effect on the aquatic ecosystem, so long as such alternative does not have other significant adverse environmental consequences; or (ii) The proposed discharge will result in significant degradation of the ecosystem; or (iii) The proposed discharge does not include all appropriate and practicable measures to minimize potential harm to the aquatic ecosystem; or (iv) There does exist sufficient information to make a reasoned judgment as to whether the proposed discharge will comply with these guidelines."

Log transfer facilities under the various action alternatives for the Cholmondeley Project were evaluated on the basis of items i through iv noted above. That evaluation is presented in subsequent discussions.

Specific Log Transfer Facility (LTF) site locations are contained in the Log Transfer Site Reconnaissance Report located in the Planning Record.

CONSTRUCTION OF CHOM #1 LTF SITE

Includes constructing the LTF as a low angle float off ramp system with associated upland log sorting area.

Evaluation of Alternatives.

Determine if: **(i) There is a practicable alternative to the proposed discharge that would have less adverse effect on the aquatic ecosystem, so long as such alternative does not have other significant adverse environmental consequences.**

Description:

The north side of Cholmondeley Sound contains no existing LTF's that could be used. Sunny Cove drainage area is a part of this area. The site is approximately 1/2 mile east of the mouth of Sunny Cove where it connects to Cholmondeley Sound. The site would be developed to have minimal visual impact from the surrounding water areas. The site would be developed as a low angle ramp system costing approximately $80,000 to construct.

The Chom #1 LTF would serve approximately 5,900 acres of land in the Sunny Cove and surrounding areas of which approximately 514 acres are proposed for harvest on this project.

Alternatives to construction of Chom #1 LTF.

No action alternative: No harvest of timber resources in the Sunny Cove area.

Relocate LTF

Sub-alternatives to the proposed LTF modification.

Dry land transfer from bulkhead to barge

Chain slide system

A-frame lift off system

Other alternatives not demonstrated as practicable were not considered any further. For example; pile supported bridge ramp and barge or special slide out ramps etc.

Evaluation between alternatives

No Action: The No Action alternative would eliminate the need for an LTF, thus producing no discharge of any pollutants. Accordingly, access to approximately 5,900 acres of timber resources would be forgone.

****

Relocate LTF: Relocation of the LTF to other sites would create the same impacts to other undisturbed portions of the aquatic habitat. Haul and fuel use would be the same as that of the proposed site. The cost of the low-angle ramp compared with the next available site is significantly less due to the type of log transfer system. The next available site would be an A-frame type system approximately 1/4 mile to the west (Chom #5). The LTF Reconnaissance Report found in the planning record contains all LTF options looked at for each area. The USDI F&WS Field Investigation Report, found in the planning record, contains recommendations for the potential log transfer facilities. Site Chom#1 was the site recommended by the F&WS, this recommendation comes from the fact that the marine habitat has already been affected by previous activities.

Sub-alternatives to the proposed LTF modification

Dry Land Bulkhead to Barge Transfer: Modification of the proposed site for barge loading would require construction of a 3 to 5 acre sort yard, relocation of the access road, and expansion of the existing fill with bulkhead to deep water.

The barge system will affect 4 to 6 acres of forested wetlands, 0.2 acres of fill in aquatic habitat and cost $250,000 more. Haul and fuel use would be about the same.

Chain Slide System: Modification to a chain slide would require relocation of the access road, and expansion of the upland operating area due to loss of the fill area. This would affect about 1.5 acres of forested wetlands and about 0.2 acres of aquatic habitat associated with fill and slide structure. Road and LTF construction costs would be about $627,000. Fuel use and haul would be the same as the proposed action. Chain slide systems are expensive to purchase, construct and maintain.

Determine if: **(ii) The proposed discharge will result in significant degradation of the aquatic ecosystem**

Chom #1 is a proposed site that has been previously affected by bark deposits. Construction and operation of a LTF at Chom #1, therefore would probably have comparatively little additional impact, and should be considered before an unimpacted site is used, (USDI F&WS Field Investigation Report).

The proposed low-angle ramp system is capable of transferring logs without any significant entry velocity. This capability will minimize discharge of bark into the aquatic system.

Surface runoff into the aquatic ecosystem will be kept to a minimum by insloping the road and LTF surface, collecting and settling runoff, and periodic surface cleanup of bark and woody debris. (40CFR 122.27 Silvicultural Point Sources; applicable to State NPDES programs, see 40 CFR 123.25).

Determine if: **(iii) The proposed discharge does not include all appropriate and practicable measures to minimize potential harm to the aquatic ecosystem**

The existing site will adapt to a low angle ramp system with the least amount of impacts to both the uplands and aquatic ecosystem. The low angle ramp system is capable of eliminating entry velocities.

Surface runoff into the aquatic ecosystem will be kept to a minimum by insloping the road and LTF surface, collecting and settling runoff, and periodic surface cleanup of bark and woody debris. (40CFR 122.27 Silvicultural Point Sources; applicable to State NPDES programs, see 40 CFR 123.25).

The National Marine Fisheries Service and U.S. Fish and Wildlife Service recommended using the proposed Chom #1 site. (See National Marine Fisheries and U.S. Fish and Wildlife agencies report, planning record)

Sunny Cove and surrounding area is small, resulting in short periodic use periods throughout the 100-year rotation. A low-angle ramp would be most economical for such intermittent operations, as the site would accommodate the ramp.

CONSTRUCTION OF CLOVER BAY-3(CB-3) LTF SITE

Includes constructing the LTF as a low angle float off ramp system with associated upland log sorting area.

Evaluation of Alternatives.

Determine if: **(i) There is a practicable alternative to the proposed discharge that would have less adverse effect on the aquatic ecosystem, so long as such alternative does not have other significant adverse environmental consequences.**

Description:

Clover Bay area contains no existing LTF's that could be used. The site is approximately 1/2 mile west of the mouth of Clover Bay where it connects to Clarence Strait. The site would be developed as a low angle ramp system costing approximately $80,000 to construct.

The CB-3 LTF would serve approximately 6,400 acres of land to the North of Clover Bay and surrounding areas of which approximately 805 acres are proposed for harvest on this project.

Alternatives to construction of CB-3 LTF.

No action alternative: No harvest of timber resources Clover Bay area.

Relocate LTF

Sub-alternatives to the proposed LTF modification.

Dry land transfer from bulkhead to barge

Chain slide system

A-frame lift off system

Other alternatives not demonstrated as practicable were not considered any further. For example; pile supported bridge ramp and barge or special slide out ramps etc.

Evaluation between alternatives

No Action: The No Action alternative would eliminate the need for an LTF, thus producing no discharge of any pollutants. Accordingly, access to approximately 6,400 acres of timber resources would be forgone.

****

Relocate LTF: Relocation of the LTF to other sites would create the same impacts to other undisturbed portions of the aquatic habitat. Haul and fuel use would be the same as that of the proposed site. The cost of the low-angle ramp compared with the next available site is significantly less due to the type of log transfer system. The next available site would be an A-frame type system approximately 1/4 mile to the west (CB-2). The LTF Reconnaissance Report, found in the planning record, contains all LTF options looked at for each area. The USDI F&WS Field Investigation Report, found in the planning record, contains recommendations for the potential log transfer facilities. Site CB-3 was the site recommended by the F&WS over the other sites in the area.

Sub-alternatives to the proposed LTF modification

Dry Land Bulkhead to Barge Transfer: Modification of the proposed site for barge loading would require construction of a 3 to 5 acre sort yard, relocation of the access road, and expansion of the existing fill with bulkhead to deep water.

The barge system will affect 4 to 6 acres of forested wetlands, 0.4 acres of fill in aquatic habitat and cost $257,000 more. Haul and fuel use would be about the same.

Chain Slide System: Modification to a chain slide would require relocation of the access road, and expansion of the upland operating area due to loss of the fill area. This would affect about 1.5 acres of forested wetlands and about 0.2 acres of aquatic habitat associated with fill and slide structure. Road and LTF construction costs would be about $627,000. Fuel use and haul would be the same as the proposed action. Chain slide systems are expensive to purchase, construct and maintain.

Determine if: **(ii) The proposed discharge will result in significant degradation of the aquatic ecosystem**

CB-3 is a proposed site that appears to offer good potential for flushing flows to disperse bark and other debris to deep water (>18.3m). Construction and operation of an LTF at CB-3 is better suited to direct debris to the deeper waters, than others analyzed in the area, (USDI F&WS Field Investigation Report)

The proposed low-angle ramp system is capable of transferring logs without any significant entry velocity. This capability will minimize discharge of bark into the aquatic system.

Surface runoff into the aquatic ecosystem will be kept to a minimum by insloping the road and LTF surface, collecting and settling runoff, and periodic surface cleanup of bark and woody debris. (40CFR 122.27 Silvicultural Point Sources; applicable to State NPDES programs, see 40 CFR 123.25)

Determine if: **(iii) The proposed discharge does not include all appropriate and practicable measures to minimize potential harm to the aquatic ecosystem**

The proposed site will adapt to a low angle ramp system with the least amount of impacts to both the uplands and aquatic ecosystem. The low angle ramp system is capable of eliminating entry velocities.

Surface runoff into the aquatic ecosystem will be kept to a minimum by insloping the road and LTF surface, collecting and settling runoff, and periodic surface cleanup of bark and woody debris. (40CFR 122.27 Silvicultural Point Sources; applicable to State NPDES programs, see 40 CFR 123.25)

The National Marine Fisheries Service and U.S. Fish and Wildlife Service concluded that the proposed CB-3 site would be acceptable. (See National Marine Fisheries and US Fish and Wildlife agencies report, planning record)

Clover Bay and the surrounding area is small, resulting in short periodic use periods throughout the 100-year rotation. A low-angle ramp would be most economical for such intermittent operations, as the site would accommodate the ramp.

CONSTRUCTION OF N.E. McKENZIE (NEMK) LTF SITE

Includes constructing the LTF as a low angle float off ramp system with associated upland log sorting area.

Evaluation of Alternatives.

Determine if: **(i) There is a practicable alternative to the proposed discharge that would have less adverse effect on the aquatic ecosystem, so long as such alternative does not have other significant adverse environmental consequences.**

Description:

The northeast side of McKenzie Inlet contains no existing LTF's that could be used. The site is approximately 1 and 1/2 miles south of the mouth of McKenzie Inlet, on the east side, where it connects to Skowl Arm. The site would be developed as a low angle ramp system costing approximately $80,000 to construct.

The NEMK LTF would serve approximately 3200 acres of land in the Sunny Cove and surrounding areas of which approximately 293 acres are proposed for harvest on this project. This LTF also has the potential to serve lands recently conveyed to Sealaska Corp. in the Saltery Cove area.

Alternatives to construction of NEMK LTF.

No action alternative: No harvest of timber resources NE McKenzie area.

Relocate LTF

Sub-alternatives to the proposed LTF modification.

Dry land transfer from bulkhead to barge

Chain slide system

A-frame lift off system

Other alternatives not demonstrated as practicable were not considered any further (for example, pile supported bridge ramp and barge or special slide out ramps, etc.).

Evaluation between alternatives

No Action: The No Action alternative would eliminate the need for an LTF, thus producing no discharge of any pollutants. Accordingly, access to approximately 3,200 acres of timber resources would be forgone.

Relocate LTF: Relocation of the LTF to other sites would create the same impacts to other undisturbed portions of the aquatic habitat. Haul and fuel use would be the same as that of the proposed site. The cost of the low-angle ramp compared with the next available site is significantly less due to the type of log transfer system. The next available site would be a low angle ramp type system approximately 1/4 mile to the north. (NEMK-6). The LTF Reconnaissance Report found in the planning record contains all LTF options looked at for each area. The USDI F&WS Field

Investigation Report, found in the planning record, contains recommendations for the potential log transfer facilities. Sites NEMK and NEMK-6 were acceptable to the F&WS, NEMK site was chosen over NEMK-6 due to the more substantial terrestrial impacts associated with the construction and operation of and LTF at NEMK-6

Sub-alternatives to the proposed LTF modification

Dry Land Bulkhead to Barge Transfer: Modification of the proposed site for barge loading would require construction of a 3 to 5 acre sort yard, relocation of the access road, and expansion of the existing fill with bulkhead to deep water.

The barge system will affect 4 to 6 acres of forested wetlands, 0.4 acres of fill in aquatic habitat and cost $250,000 more. Haul and fuel use would be about the same.

Chain Slide System: Modification to a chain slide would require relocation of the access road, and expansion of the upland operating area due to loss of the fill area. This would affect about 1.5 acres of forested wetlands and about 0.2 acres of aquatic habitat associated with fill and slide structure. Road and LTF construction costs would be about $627,000. Fuel use and haul would be the same as the proposed action. Chain slide systems are expensive to purchase, construct and maintain.

Determine if: **(ii) The proposed discharge will result in significant degradation of the aquatic ecosystem**

NEMK is a proposed site that is suitable for development of an LTF with good potential for dispersal of bark to deeper water. (USDI F&WS Field Investigation Report).

The proposed low-angle ramp system is capable of transferring logs without any significant entry velocity. This capability will minimize discharge of bark into the aquatic system.

Surface runoff into the aquatic ecosystem will be kept to a minimum by insloping the road and LTF surface, collecting and settling runoff, and periodic surface cleanup of bark and woody debris. (40CFR 122.27 Silvicultural Point Sources; applicable to State NPDES programs, see 40 CFR 123.25).

Determine if: **(iii) The proposed discharge does not include all appropriate and practicable measures to minimize potential harm to the aquatic ecosystem**

The existing site will adapt to a low angle ramp system with the least amount of impacts to both the uplands and aquatic ecosystem. The low angle ramp system is capable of eliminating entry velocities.

Surface runoff into the aquatic ecosystem will be kept to a minimum by insloping the road and LTF surface, collecting and settling runoff, and periodic surface cleanup of bark and woody debris. (40CFR 122.27 Silvicultural Point Sources; applicable to State NPDES programs, see 40 CFR 123.25).

The National Marine Fisheries Service and U.S. Fish and Wildlife Service found the proposed NEMK site to be an acceptable site for an LTF. See attached National Marine Fisheries and US Fish and Wildlife agencies report.

N.E. McKenzie and the surrounding area is small, resulting in short periodic use periods throughout the 100-year rotation. A low-angle ramp would be most economical for such intermittent operations, as the site would accommodate the ramp.

HELICOPTER TRANSFER SITES # 1 THRU #7

Includes flying logs from the harvest areas directly to a barge.

Evaluation of Alternatives.

Determine if: **(i) There is a practicable alternative to the proposed discharge that would have less adverse effect on the aquatic ecosystem, so long as such alternative does not have other significant adverse environmental consequences.**

Description:

Helicopter transport of logs from the harvest areas to a barge eliminates the need for constructing roads on steep ground.

One area tributary to the project is designated for helicopter logging in all alternatives considered. This area will require sites #'s 1 & 2. All other sites will be used only in other alternatives as designated for helicopter harvest.

Alternatives to Helicopter transfer system.

No action alternative: No harvest of timber resources for areas scheduled for helicopter harvest.

Construct roads to the harvest areas and haul timber to newly constructed LTF's.

Evaluation between alternatives

No Action: The No Action alternative would eliminate the need for any harvest, thus producing no discharge of any pollutants. Accordingly, access to up to 1900 acres of timber resources would be forgone.

Construct roads to the harvest areas and haul timber to newly constructed LTF's. The road alternative will construct roads in all cases on oversteepened slopes, cause for construction of new LTF's and would have high impacts, due to massive full bench areas and mass failures, to the visual qualities.

Determine if: **(ii) The proposed discharge will result in significant degradation of the aquatic ecosystem**

Helicopter transfer of logs from the harvest area directly to barge minimizes impacting the shallow high value marine habitat near the shoreline. The need for fill in the aquatic ecosystem is eliminated by using this system.

Landing logs on a barge will eliminate discharge of bark into the aquatic ecosystem. periodic cleaning of the barge deck would minimize surface runoff into the aquatic ecosystem.

Determine if: **(iii) The proposed discharge does not include all appropriate and practicable measures to minimize potential harm to the aquatic ecosystem**

The helicopter transfer system will create the least impact to both the uplands and aquatic ecosystems. The need for filling in the aquatic habitat and surface runoff control is eliminated by use of this system.

The use of helicopter transfer for isolated harvest areas is preferable to developing a land LTF or connecting to other LTF sites as it will minimize both upland and aquatic ecosystem impacts and costs. Development of roads and the LTF would be uneconomical for the amount of timber volume being harvested in isolated areas.

Surface runoff into the aquatic ecosystem will be kept to a minimum by periodically cleaning the barge deck of bark and woody debris.

ADDENDUM TO CHOLMONDELY LTF
RECONNAISANCE REPORT
04/09/01

Jack Oien

Due to the great concern over having an LTF cited in the Clover Bay area on P.O.W. Island and management distrust that an adequate job was done to look for viable LTFs, there has been an additional effort to find a suitable LTF outside of Clover Bay. The total additional sites are listed as follows:

1. Road ties to other LTFs or sites available for development.
   a. Road tie to Spiral Cove
   b. Road tie to Sunny Cove

2. Other sites investigated for development outside of Clover Bay.
   a. Clover Point
   b. Dr. Point South
   c. Dr. Point (previously analyzed)
   d. 20 Fathom Bank
   e. Island Pt. Barge
   f. Trollers Pt.

ROAD TIES TO OTHER LTFS OR SITES AVAILABLE FOR DEVELOPMENT

Tie to Sunny Cove LTF

In lieu of the LTF in Clover Bay, road ties to other LTFs were considered. A road tie to the proposed LTF near Sunny Cove was analyzed and found to entail and additional 7.7 miles of road to connect to the road system that access the timber harvest areas north of Clover Bay. The road would continue to be in the Clover Bay area and would be noticeable from the Lodge and other areas of the bay. Noise from road construction would be noticeable for the short time it would take to construct through the area. The road would pretty much bisect the medium OGR on the south and west sides of Clover Bay. Approximately 5 miles of the 7.7 miles of road would be within the OGR and would access no additional harvestable timber until the OGR volume becomes available for harvest.

This location would eliminate the need for an LTF in the Clover Bay area and would not require the change in any harvest area or volume reduction. Effects on the marine areas would be less due to the reduction of one LTF although there may be greater effects at the Sunny Cove LTF from bark accumulation due to the additional timber volume being put in the water there. With only a total of 20-25 mmbf being put in the water it is expected that the bark accumulation would be within permit limits. There would be additional impacts on uplands with the addition of 7.7 miles of road traversing through wetland areas and crossing numerous streams. Road construction difficulty would be moderate over most of the road location. Cost of the additional 7.7 miles of road would be $1,416,800. Reduction of the LTF and road accessing the Clover Bay LTF would amount to approximately one mile less of road and the cost of LTF construction for a total of $234,500, to be reduced for comparison purposes. **Total dollar change +$1,182,300.00.**

Tie to Spiral Cove LTF

Spiral Cove LTF was surveyed and assessed during the original LTF reconnaissance and is in the original report. A road connection, from the end of the road going north of Clover Bay in unit 616-024, to the Spiral Cove site would require approximately 5.5 miles of additional road. The original LTF recon report indicated only 2.5 miles of road to get to the harvest units but subsequent road recon of the has found that the original route is not feasible so an alternative route was used. The route required would traverse some difficult ground and have some adverse effects on visuals from Kasaan Bay and Trollers Cove. Overall construction difficulty would be moderate to difficult. There would be additional impacts on the uplands with the addition of 5.5 miles of road. Road construction would be over

mostly wetlands with numerous stream crossings. Cost of the additional 5.5 miles of road and the A-frame type LTF would be approximately $1,559,400. Reduction of the LTF and road accessing the Clover Bay LTF would reduce the total cost of this alternative by $234,500 for comparison purposes. **Total change +$1,324,900.**

Other sites investigated outside of Clover Bay

Clover Point, Dr. Point South, Dr. Point and 20 Fathom bank sites were assessed and were found to be too exposed to weather and other adverse safety aspects associated with barge LTFs. Consultations with barge and boat operators that work in the areas did not recommend the location of a facility anywhere along the exposed coastline. Clover Point and Dr. Point South were also in waters far to shallow to allow barge loading activities for a length of time long enough for a successful LTF operation. Biologists also indicated that the areas on the outside were far more productive from a marine biology standpoint that the waters within the bays such as Clover Bay.

Trollers Pt. was also found to be shallow and has numerous rock outcrops below the zero tideline that would prevent safe barge operations.

Island Pt. Site proved to adequate water and access from the uplands to allow operations of a barge facility. A facility to put logs in the water, an A-frame, is also feasible at this site but due to the cost of the equipment involved and the exposure to weather conditions, a barge facility was determined to be the best system for the site. The site has not yet had USFWS divers determine the feasibility from the standpoint of marine biology as yet.

The following is the analysis and estimated costs for using the Island point LTF for the North and South Monie Lake sales within the Cholmondeley EIS.

Island Point LTF Analysis

Log storage area

Due to the distance the LTF is from the units for this analysis a log storage/sort area will be required for storage of logs while awaiting loading onto the barge. Minimum size of storage area is used (3 acres) as this is a one entry operation.

Clearing @ $2800/ac **$8400**

Rock Cost in Place $6.50/cy

$$\frac{43560 \text{ x } 3\text{ac x } 3(\text{ft. depth})}{27} = 14{,}520\text{cy}$$

14520cy x $6.50/cy = **$94,380**

total **$102,780**

LTF bulkhead for barge facility

Clearing - 1.2 acres upland @ $2800/ac **$3360**

Due to topography and steepness of solid rock at the bulkhead site a bench will need to be constructed @ the –4.0 elevation in order to key in the rock used to construct the rock bulkhead face. A log bulkhead was considered due to the short term use of the facility but there is definitely a lack of logs in the area that would be large enough to facilitate the construction so a rock bulkhead was used to develop costs.

5 days of work for backhoe, drill and truck, backhoe @$150/hr., drill @ $60/hr., truck @ $50/hr for a total of $260/hr.
$260/hr X 50hrs = **$13,000**

Construct bulkhead wall 40 foot wide and 24 feet tall with 2 wing walls that average 32 feet long by 20 feet tall for a total of 340 cy of Rip Rap stacking rock @$48/cy = **$16,320**

Backfill behind the bulkhead wall including LTF approach road and road to log storage area 9,540 cy @ $6.50/cy = **$61,425**

Safety Piling for Barge

This consists of installing one piling for the barge to tie of to during log loading operations as the barge facility can only be designed for end loading barges. While barge is being end loaded the barge will be positioned perpendicular to the the predominate SE winds. Although the position of the LTF appears to be in a protected cove the surrounding terrain is low and does not give adequate protection from winds coming up Clarence Straits and is extremely exposed to northerly winds.

Costs of installation:

40 feet of piling including bolt connections @ $80/l.f.	**$3200**
Mobilize drill/pile driver	**$10,000**
Divers/underwater work minimum cost to mobilize	**$10,000**
Total	***$23,200***

Total LTF Construction const to be used for alternative analysis

Log storage/sort area		$102,780
Construction of barge Facility	$ 94,105	
Safety piling		$ 23,200
Rock source development	$ 12,000	
Total		$232,085

USE OF ISLAND PT. LTF IN ALTERNATIVE 6

There are two options for harvest and transportation access for the Cholmondeley units identified in alternative 6.

Option 1 is to tie the road to the proposed transportation system (alt.5) and drop all roads accessing units 616-022,023,024,123,010, 617-009 and helicopter log these units.

Option 2 is to tie the road to the proposed transportation system (alt.5) and use the same harvest system as in alt. 5 for units 616- 022,023,024,123. Units 616-010 and 617-009 would have the roads deleted and would be helicopter logged.

Option 1 cost analysis

Use Island Pt. LTF & helicopter log units 616-022,023,024,123,010, 617-009. In comparison to alt. 5 this will involve the addition of 2.91 miles of new road construction that includes one 60 foot bridge and three class one stream crossings, the construction of the Island Pt LTF and storage area and the addition of helicoptor logging costs over the conventional logging costs. There will also be the deletion of 1.8 miles of new road construction near Clover Bay that accessed units 616-010 & 617-009, the Clover Bay LTF cost, and deletion of 2.8 miles of road that accessed the N.Monie Lake units.

Road Costs

Add 2.91 miles new construction @$180K/mi	+523,800
Add 1 60 ft. Bridge & 3 Class I crossings	+190,000
Add Island Pt LTF	+232,085
Subtract Clover Bay LTF cost	- 80,000
Subtract 1.8 miles new const @ Clover Bay	-270,000
Subtract 2.8 miles new Const @ N. Monie	-420,000

Logging costs

Logging cost were calculated using the costs developed in the DEIS, basically using $80/mbf for conventional logging and $300/mbf for helicopter logging. All helicopter yarding distances will be the shortest, least costly option. The cost difference for the yarding is $220/mbf so the following costs should be added to the costs in alternative 5 for this area:

Unit	MBF	Cost Change
616-010	396	+ 87,120
616-022	684	+150,480
616-023	248	+ 54,560

Unit	MBF	Cost Change
616-024	750	+165,000
616-123	501	+110,220
617-009	214	+ 47,080

TOTAL + $790,345.00

This is the total cost above the cost of alternative 5 for this area.

Option 2

Use Island Pt. LTF & helicopter log units 616-010, 617-009. In comparison to alt. 5 this will involve the addition of 2.91 miles of new road construction that includes one 60 foot bridge and three class one stream crossings, the construction of the Island Pt LTF and storage area and the addition of helicoptor logging costs over the conventional logging costs. There will also be the deletion of 1.8 miles of new road construction near Clover Bay that accessed units 616-010 & 617-009, and the Clover Bay LTF cost.

Road Costs

Add 2.91 miles new construction @$180K/mi	+523,800
Add 1 60 ft. Bridge & 3 Class I crossings	+190,000
Add Island Pt LTF	+232,085
Subtract Clover Bay LTF cost	- 80,000
Subtract 1.8 miles new const @ Clover Bay	-270,000

Logging costs

Logging cost were calculated using the costs developed in the DEIS, basically using $80/mbf for conventional logging and $300/mbf for helicopter logging. All helicopter yarding distances will be the shortest, least costly option. The cost difference for the yarding is $220/mbf so the following costs should be added to the costs in alternative 5 for this area:

Unit	MBF	Cost Change
616-010	396	+ 87,120
617-009	214	+ 47,080

TOTAL + $730,085.00

This is the total cost above the cost of alternative 5 for this area.

Appendix F

Sale Area Improvement (SAI) Plan

Appendix F

Natural Regeneration Surveys and Certification

Objective:
Monitor the occurrence of natural regeneration stocking following harvest. Area direction in FSH 2409.17 calls for stocking levels of 300 trees/ac. with 60% stocked plots after the fifth growing season after final harvest. These surveys will be conducted on harvest units. Units are expected to be harvested between 1999 and 2005. The stand will be certified as regenerated if 300 conifer seedlings per acre area established on 60% of a harvest unit. Work will also include data input into SIS, updating GIS, and SAI plan and prescription modifications to reflect stand changes. This work is required NFMA.

Treatment:
Surveys will be conducted three (3) growing seasons following harvest to assure that satisfactory levels of natural stocking have been achieved. Assumes 2002 as the midterm of the harvest areas, surveys would be conducted after the 2004 growing season.

Cone Collection
Objective/Justification:
To collect an adequate amount of seed from the appropriate seed zones in order to accomplish required artificial regeneration. Seed will be collected from phenotpically superior trees which exhibit desirable characteristics in form, height, branch angle, resistance to insects and disease, etc. Planting of 102 acres of Alaska yellowcedar will require (102 acres X 200 TPA) 20,400 seedlings. Approximately 40,000 seedlings can be produced per pound of clean seed. Therefore .5 pounds of clean seed or 2.5 bushels (5 bushels/ pound seed) of cones must be collected. This should be rounded to 3 bushels assuming poor cone years. Cone collection will occur in moderate or good cone collecting years based on field surveys. Collections will be done by force account crews in the fall after the cones have matured. Collection will involve identifying phenotypically superior trees, felling the tree, picking, cleaning, and bagging the cones, tagging the bags, and transporting the cones to Petersburg where the seed will be stored until needed.

Artificial Reforestation
Objective/Justification:
Alaska yellowcedar will be interplanted on approximately 102 acres to maintain species diversity within the stands. Natural Alaska yellowcedar restocking is unlikely because of: limiting distance of seed dispersal (300-400 feet); infrequent cone crops and low germination rates; lack of advance regeneration under the old growth canopy due to shade intolerance; competition from other coniferous seedlings and heavy slash accumulations due to low volume stands. Planting will occur mainly on high elevation low-quality sites where yellowcedar occupies a portion of the site. Alaska yellowcedar 1-0 seedlings grown from local seed will be used. Planting is planned to occur in 2002, and will include updating SIS/GIS and SAI Plan and prescriptions modifications to reflect stand changes.

The sites to be planted fall under three general categories:

1. Floodplains and Alluvial Fans- These areas usually have deep, well drained soils with poorly developed horizons due to periodic flooding. Mature stands rarely support more than 100-150 stems per acre. Species composition is primarily spruce growing on raised hummocks. Perturbation results in heavy brush (alder, salmonberry, and devils club) competition that will delay natural regeneration and suppress tree growth for a period of 5 to 20 years following harvest. The vast majority of the Tonowek and Tuxekan soil series have been excluded from harvesting in recent years. No harvest is proposed on large areas of these sites, however small inclusions may need regeneration established by artificial means. Existing sites will be planted with Sitka spruce or cedar depending on original stocked mixture.

2. Dense Brush or Inadequate Seed Source- Sparsely stocked sites with an established ground cover of dense vegetation such as salmonberry or devils club will retard stocking and growth for at least 5 - 10 years. Sites lacking a satisfactory seed source, including high elevation sites, sites adjacent to muskegs or lakes and immature stands where natural regeneration cannot be assured or even reasonably expected within 5 years after harvest, will be planted with Sitka spruce or cedar.

3. Somewhat Poorly Drained to Poorly Drained Soils, Low Productivity Cedar Sites- These sites currently support decadent, low-quality sawtimber with cedar making up at least 10 percent of the canopy. Getting natural cedar regeneration on these sites is unlikely because:

    a. Cedar has limited capabilities to disperse seed over long distances from the parent tree. Alaska-cedar seed dispersion is limited to 300-400 feet.

    b. Alaska cedar is not a prolific seed producer. Cone crops are infrequent and germination rates are low.

    c. Unlike "down-south" cedar, southeast Alaska cedar display a greater degree of intolerance to shade. Local cedar is unable to regenerate under its own canopy and advance cedar reproduction is generally absent on the forest floor.

    d. Low-volume cedar stands often result in heavy slash accumulation which can inhibit natural reproduction.

Therefore, planting of western red cedar and/or Alaska-cedar to improve productivity and maintain tree species diversity, shall be addressed in the silvicultural prescription for cedar stands.

Treatment: Floodplains/alluvial fans and dense shrub/inadequate seed source planting areas will be planted with 1-0 Sitka spruce stock. The low productivity/Cedar sites will be planted with 1-0 western red cedar or Alaska-cedar. Generally a mixture of western red cedar and Alaska yellow cedar will be planted on sites below 800 feet in elevation on North and East Aspects, and below 1000 feet on South and West aspects. Cedar sites with elevations above those listed have been scheduled for Alaska yellow cedar planting only.

Needs/Cost: The direct cost of planting is $350.00 per acre. See enclosed detailed listing of stands requiring treatment/alternative.

$350.00/acre X 1.04>5 (1.217) = $4255.95 X 1.5112(OH) = $643.70/acre

Plantation 1st Year Survival Exam

Objective/Justification:
The 102 acres anticipated for planting on this project area will be examined after the first growing season after planting. The exam will determine seedling survival, growth, and the need for replanting and reforestation certification. Stake rows will be established to measure the survival. The costs also include data input into SIS, updating GIS, and SAI plans and prescription modifications to reflect stand change. This work is required by NFMA.

Plantation 3rd Year Survival Exam and Certification

Objective/Justification:
The 102 acres surveyed from the 1st year survival exam will be exam in the 3rd growing season after planting. Using the same stake rows from the 1st year exam and certification if unit is full stocked.

Timber Harvest Evaluation

Objective/Justification:
Harvest evaluations are desired to assess implementation success of prescriptions and effects on regeneration when using alternative harvest methods. The use of harvest techniques which incorporate selection harvest methods, retention of overstory structure, leave islands and leave strips has been limited in Southeast Alaska to date. The degree of success in implementing such prescriptions should be evaluated in order to determine how effective these prescriptions are in meeting multiple goals and objectives. If implemented properly and found to be successful in meeting goals and objectives, such prescriptions could be applied on a much broader basis to meet goals and objectives for ecosystem management.

Treatment:
Harvest evaluation will be performed by a certified silviculturist or those specifically training for the task under the direction of a certified silviculturist. Treatments which incorporate selection harvest methods, residual tree retention, leave areas, leave islands, or other non-clearcut treatments will be evaluated as soon after harvest as practical, within two years of harvest completion. Evaluations will consist of a walkthrough or quick plot stand examination of treatment area during which measurements will be taken which will provide a basis for comparisons between expected and actual treatment results. If the prescriptions called for leaving 42 merchantable trees per acre, measurements would be taken for comparison with what was prescribed and anticipated. The prescription will be used as a baseline for comparison with actual on the ground results. Emphasis should be placed on evaluating why merchantable trees, intended for retention, were damaged or lost. A harvest evaluation report will be produced which compares prescriptive treatments and expected results with implemented treatment and actual results. Recommendations for adjusting future prescriptions, where appropriate, will be included in such reports.

Release

Objective/Justification: Remove high numbers of poor form or diseased submerchantible hemlock whips.

Soils prescriptions for units call for partial suspension on high mass movement index MMI = 3 soils during yarding operations (very high mass movement index MMI = 4 soils are no longer considered suitable). In some cases, many undesirable residuals remain standing following partial or full suspension yarding. Hemlock residuals diseased with mistletoe can re-infect the new regeneration if they are allowed to remain in the stand. Residuals are often of poor form, may contain heart rot, or are damaged during logging and therefore, rarely contribute to the volume of the new stand. When in great numbers, residuals will compete for growing space and can result in a loss in volume at the end of the next rotation.

Region 10 has no contractual requirement for the logger to sever residual trees. Removing hemlock residuals (mistletoe infected, poor form, or damaged) as part of a precommercial thinning treatment has not been very successful because of widely fluctuating funding and targets for PCT.

Treatment: Sever the hemlock residuals following harvest. As a rule, about 20 to 30 percent of the acres which require partial or full suspension, will need the residuals severed (on certain plant associations).

Needs/Cost: Hemlock residuals will require severing of mistletoe infected stems at a direct cost of $200.00 per acre.

$200.00/acre X 1.04>5 (1.217) = $243.40 X 1.5112 (OH) = $367.83/acre

Recreational Fisheries Development in the Monie Lake Area

Objective/Justification:
Monie Lake and the lakes south of Monie Lake contain resident populations of cutthroat and dolly varden. This area has been identified as a potential recreational fishing area for Ketchikan area residents. The road system would be left open from the LTF in Clover Bay to the bridge crossing west of Monie Lake. Access would be needed for people to get from the road system to the lakes to utilize the fishing opportunities. (KV funding could not be used for this project).

Treatments:
Trail brushing/construction: Low grade trails would be provided from the road system to each of the three lakes south of Monie Lake and to Monie Lake itself. This would provide easier access to the lakes than trying to hike through logged areas.

Fisheries evaluation: Fisheries surveys would be conducted in each lake to determine size distributions of the fish populations and catch per unit effort. These should be conducted prior to trail construction to ensure that a quality fishing experience is possible at the lakes.

Cost:
Approximately 1 3/4 mile of low grade trails: $25,000

Fisheries evaluation: $14,000

Watershed Stabilization and Rehabilitation

Objective:
Minimize timber harvest related introduction of sediment into fish habitat and provide future woody debris sources to the streams and floodplains.
The project is to stabilize and rehabilitate harvest-activity initiated sediment sources within the units and along roads which are no longer the responsibility of the purchaser to treat.

The majority of slides normally occur within a 5 to 10 year period after cutting or roading from the following combined impacts:

1. Harvesting on steep slopes.
2. Storms with high winds and intense rainfall.
3. Where roots of severed trees have lost their holding strength in 3 to 5 years.

Other sediment sources can be from road cut-slopes, stream crossings, bared soil in harvest units, or slumps along streams.

Treatment:
If landslides or other sediment sources are identified, they will be stabilized by planting grasses and/or herbaceous vegetation, modifying roadbeds or stream crossings, or placing logs or rocks. Future woody debris sources would be provided by tree planting. Follow up monitoring will be done after initial rehabilitation to insure stabilization has been accomplished.

Needs/ Costs: $15,000 for evaluation, treatment, and monitoring.

Erosion Control Monitoring

Objective/Justification:
To monitor the treatments planned above in watershed stabilization and rehabilitation. Follow-up monitoring is planned for two (2) years after initial rehabilitation to insure stabilization has been accomplished.

Fish Passage Enhancement

The stream below unit 616-022 (watershed F34A) contains good fish habitat. Cutthroat, dolly varden, and sticklebacks are present in the watershed. A cascade falls at saltwater apparently is a barrier to anadromous fish as no coho were present. The lowest cascade falls is about 6' high at high tide. A 6' diameter boulder inhibits passage. There is another 8' high cascade just upstream. 5' diameter boulders on the cascade create turbulence so that it is a potential barrier as well. There is another 4' high chute upstream that would probably not be a barrier. Finally there is a 3'-4' high falls about 200' up from saltwater. A log could be removed from the top and it would lower it about 1'. It should be possible to obtain passage here with some blasting, i.e. there is definitely enhancement potential so the system was classified as Class I. It was surprising that salmon are not in there now. There is no intertidal spawning habitat in the stream.

Modification of the boulders on the cascade falls would allow a coho run and possibly a sockeye run to develop in the watershed. Bioenhancement would be required because there is no existing run. Project benefits versus costs at the present time would probably be low because there is a limited amount of coho rearing habitat and spawning habitat near the lake for sockeye is very limited. Projected returns would be in the range of a couple hundred coho and about a hundred sockeye a year. The current recommendation is to maintain information on this activity as a potential future project. Fish values and economic conditions at the present time do not warrant implementation. The stream has been classified as class I because there is potential for enhancement. No anadromous fish currently use the watershed.

Estimated Cost: $30,000

Precommercial Thinning

Objective:
1) The objective of precommercial thinning is: 1) Increase timber yields by delaying the occurrence of competition for growing space between fast growing young trees. The site's wood growing potential is distributed over a few trees instead of many. This results in larger diameter stems over a shorter time span. 2) Increase the stand's spruce composition and ultimate yield and value through favoring spruce as future crop trees. 3) Remove the deformed, diseased trees. 4) And, prolong the understory vegetation for wildlife use by delaying crown closure.

Second-growth stands in Southeast Alaska suffer from excessive competition for light because of large number of young trees that invade a clearcut. Because hemlock and spruce are shade tolerant the young stands have low mortality rates and trees do not express strong dominance in the first half of a rotation. Significant natural thinning through competition occurs late in the stand's life. Precommercial thinning will result in larger diameter trees over shorter time periods, increase sawlog yields about 10-12 %, and reduce rotation length by 10 to 20 years. Thinning may occur on approximately 1375 acres of planned second-growth and recently harvested acres. (This project is beyond the time limit for KV funding).

Treatment:
Precommercial thinning will occur in stands of 15 to 30 years of age. Crop tree spacing will generally be 12'X12' but can vary according to the silviculture prescription.

Wildlife Seeding of Specified Roads

Objective/Justification:
This project is consistent with Regional and Forest direction to maintain wildlife habitat capability. The objective is to provide forage in and adjacent to harvest units to Sitka black-tailed deer and black bear. Seeding should occur in the initial years after timber harvest before there is much vegetation growth in the harvest units, or inhibiting alder growth.

Treatment:
The log purchaser is responsible for seeding all temporary roads and landings used during the sale. Therefore, treatment will include seeding of specified road 2170100, a section of the Sunny Creek mainline road (0.79 miles). In the Clover Bay area roads # 2180000-1, 2180000-2, 2180000-3 and 2180000 -4; 2180100, 2180200, 2180300, 2180310, 2180320, 2180340, 2180400, 2180600 and 2180700 will all be closed and seeded (14.7 miles). In the Saltery Cove area the following roads will be closed and seeded as well: 2190000-1, and 2190000-2 and 2190100 (4.35 miles). This is a total of 19.84 miles of seeded roadbed. Seeding will be a mixture of native seed, if possible. Fertilizer and urea will also be applied at the same time as the seed. Application will be done during the timing window to allow adequate growth.

Wildlife Thinning

Objectives/Justification:
Variable spaced thinning would be used to open up the canopy to encourage growth of the understory vegetation while leaving dominant trees, creating tickets, mimicking and promoting the natural succession from a young-growth condition to a more diverse structure. The work would be contracted. Location could be in timber or non-timber emphasis land-use designations. Force account crews would be used for layout of the units, contract administration and monitoring. Monitoring will consist of four vegetative transects per 100 acres (2 people, 1 day).

Table F-1: SAI Plan (Total Unit Pool)

CHOLMONDELEY TREATMENT UNIT #	ACRES	REF #	REGEN SURV ALT 5 (acres)	HARV EVAL ALT 5 (acres)	PLT ALT 5 (acres)	SEED COLL ALT 5 (bushels)	SURV SURV ALT 5 (#)	RE-LEASE ALT 5 (acres)	PCT 15-20 ALT 5 (acres)	PCT 20-25 ALT 5 (acres)	PCT 25-30 ALT 5 (acres)	EX STD 13 YR. PCT (acres)	H20 SHED REHAB & STABIL (acres)	RECREAT. FISH DEVELOP. (miles)	WL PCT (acres)	SYST RD SEED (miles)	FISH PASS. ENHANCE (project)	OTHER
614-001	106		106	0	0		0		106									
614-002	59		59		10	1	10		59									
614-003	15		15	0	5	1	5			15			1					
614-004	65		65	0	10	1	10			65			1					
614-005	21		21	0			0			21			1					
615-025	39		39	39			0											
616-006	0		0				0											
616-007	33		23	0	5	1	5				33							
616-008	36		30		5	1	5				36							
616-010	22		22				0						0.5					
616-011	78		63	15			0			63								
616-012	58		53		5	1	5			53			1					
616-013	69		65	3	5	1	5			65								
616-016	36		36	0	5	1	5				36							
616-017	24		12	12	5	1	5				12							
616-018	30		30	0	5	1	5				30		1					
616-019	17		17	0	5	1	5				17							
616-021	41		41	0			0			41			5					
616-022	38		23	15			0				23		1					
616-023	23		23	0			0				20							
616-024	55		25	0			0				30							
616-123	30		30	0			0	12		30								
616-275	71		71	0			0			71			5					
617-009	15		15	0	5	1	5				15							
674-032	9		5	4			0											
674-537	44		44	0			0	15			44							
674-548	14		14		5	1	5				13							
674-549	28		9	19			0		28									
674-550	26		13	13			0											
674-551	34		34	17			0											
674-565	0		0	0			0											
674-583	26		26	0	5	1	5				21							
675-027	0		0	0			0	0			0		drop					
675-028	16		16	0			0				16							
675-029	13		13	0			0	10			13		2					
675-030	67		67	0			0	25	50				1					
675-031	3		3	0			0				3							
675-032	42		32	10			0		32									
675-033	105		105	60			0	58	100				5					
675-037	43		43	0			0	25					5					
676-462	14		14	0	5	1	5											
676-472	5		5	0	2	1	2				10							
676-484	6		6	0			0											
676-489	17		17	0	5	1	5				21							
676-500	9		9	0			0											
676-592	9		9	0			0											
outside of unit														1.75	undetermin.	20	1	
Total	1511	0	1368	207	92	17	92	145	375	424	393	0	29.5	1.75	0	20	1	0

Appendix G

Erosion Control Plan

Appendix G

Erosion Control Plan For Road Crossings of Private Domestic Water Supply Streams Cholmondeley Timber Sales Final EIS

The Cholmondeley Timber Sale EIS proposes to construct, maintain, and store roads within watersheds with established domestic water use. Moving the water system intake upstream of the road is a possible measure to mitigate potential road impacts to only the public water supply system subject to Alaska Drinking Water Regulations (18 AAC 80). All other water supplies downstream of the road are private, subject to Alaska Water Quality Standards for water supply (18 AAC 70).

An erosion control plan containing an exceptionally high-standard level of mitigation in the vicinity of six stream crossings has been established to ensure Best Management Practices (BMP) implementation will achieve state water quality criteria for drinking water. Conscientious inspection during road construction, road maintenance, and road storage activities, together with the turbidity monitoring plan included in Chapter 2 of the Cholmondeley Final EIS will ensure that corrective actions are applied if necessary.

Two reviews of plans will take place, one after final location and one at the plan-in-hand pre-construction field review. A hydrologist will participate in both reviews to ensure that BMPs are appropriately tailored to site conditions in the vicinity of the following stream crossings:

Site	Location	Road Number	Milepost
A	Sunny Cove	2170000-1	0.75
B	Sunny Cove	2170000-1	0.90
C	Sunny Cove	2170000-1	1.20
D	Sunny Cove	2170000-2	0.75
E	Saltery Cove	2190000-1	1.10
F	Saltery Cove	2190000-1	1.55

Road construction contract specifications will incorporate the following BMPs, in accordance with the Forest Service Alaska Region Soil and Water Conservation Handbook (FSH 2509.22, amended 1996). These practices apply specifically to the roads within the domestic water supply watersheds, and not to roads in general within the project area.

BMP 14.2 (Road Location)

- Roads will be located to minimize ground disturbance and excavation in the immediate vicinity of these stream crossings.
- Sidehill cuts will be avoided.
- The plan-in-hand review will be the final determinant of all road locations in these watersheds.
- Temporary roads will be constructed as needed and kept to a minimum to help mitigate any potential sedimentation problems.

BMP 14.3 (Road Design)

- Roads will be designed to a minimum width consistent with traffic and safety standards.
- Overlay construction is suitable for adjacent alignment at all sites, where practicable.

BMP 14.5 (Erosion Control Plan)

- This document provides a general erosion control plan. Documentation of the pre-construction plan-in-hand review, together with detailed road plans, specifications, and site drawings, will constitute the enforceable elements of the erosion control plan for construction and maintenance activities.
- Erosion control measures will be completed concurrent with construction.
- All six sites will be clearly designated on road plans.
- Contract provisions will provide for corrective actions, including halting construction and/or traffic, if water quality criteria are exceeded.
- The contractor will participate in a pre-work meeting that will emphasize protection of water quality at these sites.

BMP 14.6 (Timing Restrictions)

- No instream work, stream channel disturbance, or equipment crossings will be authorized at these sites. Therefore, no timing restrictions for fisheries will be required (Site D may have fish populations. Site H is known to be upstream of anadromous fish populations).
- During construction, maintenance and haul, according to the "Compliance Monitoring Plan" if during storm events where it appears that more than 1.0 inch of precipitation in a 24-hour period will be exceeded, additional turbidity monitoring samples may be taken to ensure compliance with turbidity standards. This standard will be reviewed and emphasized during the plan in-hand-review.

BMP 14.7 (Measures to Minimize Mass Failures)

- No roads will be constructed on unstable slopes or slopes exceeding 67% in these watersheds.
- Quarries or rock pits will not be authorized within these watersheds.
- Fill material placed in the vicinity of stream crossings will be immediately stabilized.

- Side hill cuts will be immediately stabilized.

BMP 14.8 (Measures to Minimize Surface Erosion)

- Seed (species suitable to the project area) and fertilizer will be applied to exposed mineral soils within 72 hours of final grading work after disturbance.
- An integrated system of collection, control, and dispersal of surface runoff will be designed for each site to prevent transport of road sediment into streams.
- The use of mulch, silt fencing, erosion mats, and other methods of preventing surface erosion and sediment transport will be planned according to site conditions.
- Rock used for road construction in the project area is expected to be of durable quality, not susceptible to rapid weathering and excessive breakdown into fine particles.

BMP 14.9 (Drainage Control)

- Relief culverts will be installed concurrent with road construction to ensure that road runoff is not directed toward streams.
- Natural drainage patterns will be maintained, with extra cross-drains if necessary, to avoid concentrating surface and subsurface flow in ditchlines.
- Road surface crowning, outsloping, and rolling grades will be incorporated into road design to avoid concentrating runoff on road surface or in ditches.

BMP 14.10 (Pioneer Road Construction)

- Pioneering will be confined to the designated limits.
- Erosion control work, including temporary road drainage, will be completed concurrent with construction activities.
- Construction activities will be halted if water quality criteria are exceeded, as defined by the turbidity monitoring plan (could also refer to the road cards).

BMP 14.11 (Timely Erosion Control)

- Erosion control will be completed concurrent with construction, and prior to shutdown.

BMP 14.12 (Control of Excavation and Sidecast Material)

- No disposal areas will be designated within these watersheds.

BMP 14.14 (Control of In-Channel Operations)

- No equipment crossings will be authorized during drainage structure installation or removal.
- No excavation will be allowed adjacent to these sites.
- No channel disturbance will be allowed during construction activities.
- No debris will be removed from stream channels unless specifically authorized.
- Silt fencing, mulching, or other techniques suitable for each site will be used to prevent sediment from entering streams.

BMP 14.17 (Bridge and Culvert Design and Installation)

- Log stringer bridges or other structures will be designed and installed at each site to prevent the need for instream work. (These will be removed within a maximum of five years)
- Bridges will not constrict stream channels.
- Bridge abutments will be designed to provide adequate sediment control between road fill and stream channels.
- Riprap used for abutments will not contain fine sediments.
- Brow logs, filter fabric, or other methods will be used to contain surfacing materials and prevent sediment from entering streams.
- Multiple stream channels will not be diverted or combined into single structures.

BMP 14.18 (Quarries)

- No quarries or rock pits will be authorized in these watersheds.

BMP 14.19 (Disposal of Construction Slash)

- Construction slash will not be placed in streams.

BMP 14.20 (Road Maintenance)

- When construction activities are complete, these sites will be routinely inspected for adequacy of erosion control and maintenance needs throughout the life of the timber sale.
- Corrective actions will be immediately applied as necessary.
- Results of periodic and storm-event turbidity monitoring will be used to determine compliance with water quality criteria. If water quality criteria are exceeded, corrective actions, including halting traffic, may be required.
- Road grading to maintain crown, cross drain maintenance, and inspection of revegetation success and sediment retention near stream crossings will be emphasized during the timber sale.
- After completion of the timber sale, these sites will be inspected each spring and fall for maintenance needs until the road is stored.
- Maintenance needs during storage may be identified during sale closeout.

BMP 14.23 (Snow Removal)

- Snow removal will be allowed only after the contractor/purchaser has submitted a snow removal plan that indicates how the contractor will remove snow without disturbing road surface materials.

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